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Vol IV 16

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THE
RURAL ECONOMY
OF THE
MIDLAND COUNTIES;
INCLUDING
THE MANAGEMENT OF
L I V E S T O C K
IN
LEICESTERSHIRE AND ITS ENVIRONS;
TOGETHER WITH
M I N U T E S
ON
AGRICULTURE AND PLANTING
IN THE DISTRICT OF THE
MIDLAND STATION.

By Mr. MARSHALL.

VOL. II.

LONDON:

PRINTED FOR G. NICOL, BOOKSELLER TO
HIS MAJESTY, PALL MALL.

M, DCC, XC.



ADVERTISEMENT
TO THE
SECOND VOLUME.

WHILE I was resident in GLOUCESTERSHIRE, in 1782*, I received a flattering letter from the MIDLAND DISTRICT; the writer of it intimating, that he had lately come into possession of a considerable landed estate, that he had read the MINUTES OF AGRICULTURE, and that he was desirous of becoming my companion in literature and my pupil in agriculture; proposing to me a *partnership* in farming.

At first sight, this appeared to be a most providential incident; singularly propitious to my favorite design: the four *quarters* of the kingdom I had seen; but in the *center*, which on many accounts may be deemed the most important situation, I was still a
A 2 stranger:

* See the Advertisement prefixed to the RURAL ECONOMY of GLOUCESTERSHIRE.

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stranger : yet, without some knowledge of its practice, the plan I then had in view would necessarily prove abortive : but with such information, I should of course bring within my power a competent knowledge of the practice of the kingdom at large, to enable me to select, with sufficient judgement, the useful ideas of books, and, from the whole collection, to form a GENERAL WORK ; and, for the first time, caught a glimpse of probability of my being able to carry my ORIGINAL DESIGN into execution !

But a partnership, or any other permanent connexion, was altogether impracticable ; as being incompatible with my plan. There was only one alternative ;—either to decline the offer ; or to accept it under the species of AGENCY which derives a COMMISSION from the RECEIPT of the ESTATE, without being immediately dependant on the proprietor.

When I had fulfilled my intentions in Gloucestershire, I returned to London, by way of the Midland Counties : and finding
part

ADVERTISEMENT.

part of the estate on hand, and (through the misusage of a tenant) in the lowest stage of neglect ;—seeing also other improvements wanting upon it, I agreed, on the terms above specified, to make STATFOLD my PRINCIPAL RESIDENCE during TWO YEARS : holding myself, however, at full liberty to attend to any other concern or avocation which might occur.

But having committed myself once more to the field of practice, my time and my attention became imperceptibly absorbed in it : thus entering into the *minutiæ* of agriculture with an ardor I never intended ; and uniting, for the first time, the practice of RURAL ORNAMENT with that of RURAL ECONOMY : reserving, however, a sufficiency of leisure and application to collect the PROVINCIAL PRACTICE of the DISTRICT of the STATION, as well as to obtain a GENERAL KNOWLEDGE of the RURAL ECONOMY of the MIDLAND COUNTIES *.

* See the Advertisement to the First Volume.

ADVERTISEMENT.

THE MINUTES of which this Volume consists, are selected from a series that I continued to make, as circumstances occurred, during my residence in the District; whether they arose in my own practice, or in my observations on the nature and practice of the surrounding country.

Such as relate immediately to the established practice of the District, I have incorporated with the registered matter, in the First Volume; and such other, as are not singly entitled to public attention, are reserved for a future revision,

It may be proper to mention, that although these MINUTES were made with a distant view of publishing such as might, on due revision, appear fit for publication; yet they were purposely written in the manner of *private memorandums* (and in reality for my own future government) that nothing but a plain recital of circumstances, and of reflections aptly rising out of them, might find admittance.

In

ADVERTISEMENT.

In selecting these MINUTES for publication, I have judged it proper to arrange them in two separate series, the one of AGRICULTURE, the other of PLANTING (including the management of WOODLAND and HEDGES), as well with a view to perspicuity, as for the greater convenience of readers who may be more particularly interested in the one, or the other, of these two branches of RURAL ECONOMICS.]

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OF THE

SECOND VOLUME.

MINUTES on AGRICULTURE.

1784.

No.

1. **O**BSERVATIONS on ——— *Belton fair.*
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3. An incident on ——— *watering lime.*
4. On the use of rubbing posts in ——— *hog sties.*
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MINUTES

M I N U T E S
O N
A G R I C U L T U R E,
I N T H E
M I D L A N D C O U N T I E S.

I.

1784. JUNE 14th. **T**HIS morning, took a ride to the FAIR of BELTON, a village in Leicestershire: the last spring fair of note, in this country.

MARKETS,

A great show of cattle: not less than a thousand head: principally yearling and two yearold heifers: very small and very poor "drove things:" all of the long-horned breed, and are many of them brought, I understand, from the northward, as far as Lancashire. Some barreners and a few cows.

The price of lean cattle, extremely high. Some stripling heifers, bought at seven pound ten shillings to eight guineas a piece,

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cannot

I.
MARKETS.

cannot weigh more than forty stones, at Michaelmas; and it is a hazard whether they will, then, be worth the money now given for them.

GRAZING.

It certainly would be more prudent, in individuals, to shut up their grounds, for hay, than to buy cattle, for which no adequate profit can, on a fair chance, be expected.

Perhaps generally, mow a greater proportion when cattle are dear, graze more when they are cheap. A stack of hay may be kept, till it be wanted, without expence; but a bullock must be sold within a limited time, or loss may be added to loss.

2.

LIME.

JUNE 14. Came round by BREEDON LIME KILNS—provincially “lime works.”

Breedon Hill is a semiglobular eminence: formed of an irregular mass of limestone.

The lime produced from this rock is of a singular quality. Five or six quarters an acre are found to be a beneficial dressing, for the lands of this neighbourhood. But it is an opinion, universally admitted,
at

that if much more than that quantity be laid on, it is "poison to the land:" it having been observed, that where, by accident, a greater quantity has been scattered, no *grafs* will grow; and that where load heaps have stood, no *corn* will thrive; but, instead of it a bed of couch and thistles appear: a circumstance which has set many men against it, under an idea that it *breeds* these two pests of cultivated land. But see MINUTES 100 and 103.

Some small proportion of this rock has every appearance of vitrification, except the colour; which is that of rusty iron. See i. 200.

The quarries that are now in use are thirty or forty feet high; each a cliff of heterogeneous rock, with scarcely any covering.

Having no regular seams, the rock is obliged to be blasted; but the fragments fall easily under the hammer; breaking into irregular pieces, like glafs.

There are six or seven kilns at work: each built at the foot of its respective quarry; and against the base of the hill; with only one side open to draw at; but with two, and some three, eyes or draught holes; made wide and commodious; with an arch turned over each to support the top of the kiln; and, within this archway, above the eye, are air

B 2
holes,

2.

LIME.

2.
LIME.

holes, to feed the fire (a new idea): these air holes, six or eight in number, reaching half-way up the kiln.

From the top of the archway, projects a penthouse, or roof of faggots; forming a shed, under which a quantity of drawn lime may lie, out of the way of rain.

The burners make their layers unusually thick: the stone half a yard, and the coal five or six inches; coaling very highly (the pits only two or three miles from the kiln); throwing in coals as large as the head: their only idea seeming to be that of keeping up a strong fire in the kiln.

They are all *drawing* kilns (see YORK Econ.), being never let out, during the burning season, unless to repair: drawing, *it is said*, four or five loads from each kiln, daily!

The *price* of this lime, at the kiln, is eighteen pence a quarter; with a perquisite to the burners of meat and drink, or in lieu of it, two shillings a load; and with generally a bribe, the first load, that they may cheat their masters (and at the same time themselves), by giving a false gauge
of

of the waggon. Altogether a ridiculous custom.

2.
LIME.

The cost of five loads stands thus :

Thirty quarters at 18 <i>d.</i>	- -	£ 2	5	0
Lime men 2 <i>s.</i> a load, and 2 <i>s.</i>				
over	- - - -	0	12	0
		£. 2	17	0

or 11*s.* 5*d.* a load, of six quarters; namely, about a chaldron and a half, common lime measure.

The cost of fetching, sixteen or seventeen miles, may be estimated at a guinea a load; with turnpikes, near three shillings each load; together with watering, turning, and spreading: the whole amounting to about 40*s.* an acre for the dressing.

3.

JULY 3. Yesterday, limed part of No. 1. with Breedon lime, treated as follows :

WATERING
LIME.

Nine loads,—between twelve and fifteen chaldron, set in three heaps, across the piece, and by the side of water pits, for the conveniency of watering.

B 3

The

3.

WATERING
LIME.

The principal part was watered, as it was thrown out of the waggons. Three days ago, the heaps were turned over, and the unflaked parts rewatered.

The turning and watering cost fourpence a load; the usual price: a mere trifle, compared with the utility. See YORK. ECON. ART. LIME.

4.

FARM
BUILDINGS.

JULY 27. Every sty should have a rubbing post.

Having occasion to shift two hogs out of a sty without one, into another with a post, accidentally put up to support the roof, I had a full opportunity of observing its use.

The animals, when they went in, were dirty, with broken ragged coats, and with dull heavy countenances. In a few days, they cleared away their coats, cleaned their skins, and became sleekly haired; the *enjoyments of the post* were discernible even in their looks: in their liveliness and apparent contentment.

It is not probable that any animal should thrive, while afflicted with pain or uneasiness.

Graziers

Graziers suffer single trees to grow, or put up dead posts, in their *grounds*, for their *cattle* to rub themselves against; yet it is probable, a rubbing post has never been placed, intentionally, in a *sty*: though, perhaps, for a twofold reason, rubbing is most requisite to *swine*.

4.
FARM
BUILDINGS.

5.

JULY 28. A THIN CROP OF WHEAT may be improved, by sowing OATS over it, in the spring.

WHEAT.

Mr. WILLIAMS RICE of Tamworth had a piece of wheat, last year, which went off, in patches, in the spring; so as not to be worth standing, alone, as a crop. He therefore sowed, and harrowed in, OATS, in the vacant places. The consequence was a very full crop of *oats and wheat*; which were separated, principally, by the fan, in winnowing.

The head wheat was bought freely by the millers; who in this country, where wheat is universally grown after oats, and of course is seldom or ever free from them, are less scrupulous about a few oats being mixed among wheat, than they are in other districts.

B 4

To

5.
WHEAT.

Today, I ate some bread made from the tail of this wheat, or rather the head of the oats (about half of each): good household bread.

It is observable that, in this case, the corn requires to be cut twice over, in the mill*.

6.

HOING
TURNEPS.

SEPTEMBER 15. This year, I have given eight shillings an acre, with beer, for HOING TURNEPS; and, even at this price, it has been with difficulty I have got them tolerably done.

This price, compared with that of Norfolk (see NORF. ECON.), is extravagantly high. But there are two reasons for this disparity.

In Norfolk, every plowman and every harrowboy is a turnep hoer: here, hoing is a mystery, practised only by a few, who have it in their power to make their own terms.

Beside,

* I publish this Minute as a hint, by which much may be frequently profited. The advantage arising from the expedient consists, not more in the increase of crop, than in the diminution of weeds, which, in a thin or partial crop, seldom fail of being abundant. By a machine (an, properly regulated, oats may be separated from wheat, easily and effectually.

Beside, in Norfolk, the soil is light, and free from stones : the hoe passes freely thro' it, and the hoer, sweeping his tool round the plants at pleasure, works from hour to hour without a check. But here, the soil, in most places, abounds with pebbles, and, being of a more stubborn and cloddy nature than the sands of Norfolk, the hoer is frequently under the necessity of chopping three or four times, perhaps, in the same space of surface which a Norfolk hoer would clear with one sweep of his hoe. Were he to attempt to *draw* his hoe in the Norfolk manner (perhaps not the best), he would be liable (by reason of the obstructions turning aside his hoe from the intended direction) to cut up the plants he meant to set out, and to smother those he had already singled. Beside, he cannot, here, use so wide a hoe, as is used in Norfolk.

The Midland hoers generally use **THREE-CORNERED HOES** ; each side about seven inches. The reasons given for using these hoes, in preference to those of the usual one-edged form, are, that they require to be carried seldomer to the grinding stone, and that they are handier to single a plant with, than

a one-

6.

HOING
TURNEPS.

6.
HOING
TURNEPS.

a one-edged hoe. It is allowed, however, that a three-sided hoe requires more labour, than a single one; whose blade forming a more acute angle with the handle, lies flatter, and passes more freely through the soil, than the triangular ones; which, standing nearly at right angle to the handle, are drawn *against* the soil, rather than *under* it; and, while that cuts off the weeds clean, these have them to pull asunder: beside, where the soil is sufficiently loose, to admit the hoe to be drawn, they are very mischievous, in burying the singled plants.

To obviate these evils, as much as may be, the handles are made short; about three feet long; the workmen stooping, proportionably, in using them. If they were more dish'd, (they are a little), the mould would lodge in the hollow, and make them still more clumsy.

Among stones and clods, the triangular hoe has its merit; acting the part of the West India hoe, or a mattock. But, where the surface is tolerably free and friable, the one-edged hoe, from seven to eight inches wide, and about two and a half inches deep, is a more eligible tool.

SEPTEMBER

7.

7.

SEPTEMBER 20. This spring, I planted a BERBERY BUSH, in the wheat of No. 18.

WHEAT.
BERBERY.

It blowed the 1st of June, with the wind at northeast. The wheat blowed the first of July, with the wind at northwest, and the weather fine.

The effect, in this experiment, has not been so striking, as it was in that made in Norfolk. See NORF. ECON. MIN. 13. & 133.

The wheat, after the berbery was planted, went off, in patches, and a very thin part happened to fall round the bush. This, added to the natural strength of the soil, gave the plants the more vigor to withstand any attack that might be made upon them; and, at the same time, kept them upon their legs; while the parts which retained a full crop, were laid flat to the ground; so that a *general* blight took place.

It was sufficiently obvious, however, that the ears which *stood*, in the vicinity of the berbery plant, were filled with much lighter grains, than those of any other part, where
the

7.

WHEAT,
BERBERY.

the corn remained *standing*; in the proportion of about two to one*; excepting some which stood by the side of a cross hedge, in which had been several berbery bushes.

These, having been cut down to the stub, early in last winter, had escaped my notice; until observing a laid plot of wheat which was strikingly worse than any other part (barely worth the expence of reaping), and looking round for the cause, I discovered a large stool of berbery, within a few yards of it. Tracing the hedge, I found several more; and the wheat on one side of the hedge being a standing crop, I had a fair opportunity of observing the effect.

It is remarkable, however, that, in this case, the *straw* received no change of color; but, on rubbing the ears, the *grains* plainly told the neighbourhood they grew in. The difference was sufficiently great to engage the attention of the reaper of this land of wheat—a plain workman—who, by the lightness of the corn in his hand, could perceive when he came near a berbery plant.

Upon

* What, however, is interesting, some of the grains produced near the bush (a small weak plant, transplanted late in the spring) were of a tolerable quality; though none of them nearly full bodied.

Upon the whole, although I have not, from this year's experience, been able to form any probable conjecture, as to the cause of the injury, it nevertheless serves to fix me still more firmly in my opinion, that the BERBERY is injurious to WHEAT.

7.

WHEAT.
BERBERY.

8.

SEPTEMBER 20. An evidence that SMUT is caused by the *seed*, not by the *soil*, the *tillage*, the *manure*, or the *season*, occurs this year, in the wheat of No. 18.

WHEAT
SMUT.

Perceiving a row of shucks very full of smut, while the rest of the piece was free from it; and, on closer examination, finding that the smutty ears were of white wheat, the close in general being of red, I was led to enquire into the cause of this circumstance; and was informed, by the labourer who thrashed and winnowed the white wheat for the purpose, that the "seed"—namely, the red—was bought, and was very free from smut; but that the quantity falling short, a bushel of white wheat was taken from the barn, to finish the piece: adding, that this bushel was very foul and smutty.

Enquiring

8.

WHEAT
SMUT.

Enquiring as to the preparation, he said the red was "swum and limed:" the white sown dry and dusty, as it went out of the barn.

Therefore, whether the cause of smut originated in the *species* of wheat, in the circumstance of the seed being *smutty*, or in that of its *not* being *prepared*, is uncertain.

Nevertheless, it shows, evidently, that the evil, in this case, was caused by the *seed*; not by the *soil*, the *tillage*, the *manure*, nor the *season*; which were uniform, in this incident.

9

BARLEY
on
CLOVER
LEY.

SEPTEMBER 20. This spring, I sowed with barley, by way of experiment, about half an acre of oneyears clover ley, which I was sowing with oats, on one plowing.

It was sown the 27th April (the spring backward): at the rate of about two bushels an acre. The soil a good middle loam, which had been plowed some days, and worked very well.

The crop, where the soil lies perfectly dry, has proved very good: as much as four harvest loads an acre. But, on one end, where the
soil

foil lies moist, the oats (a charming crop) have the preference.

It is observable, that the straw, of this plot of barley, was remarkably strong and sticky, as it stood on the ground: it was as much as a man could do to drive the sithe through it.

January 1785. This patch, measuring ninetyfix rods, produced twentyone and a half bushels of head, and one and a half bushels of tail barley: together, twentythree bushels, from one bushel of seed. An evidence of the eligibility of clover ley, on a free foil, as a matrice for barley.

9.
BARLEY
on
CLOVER
LEY.

10.

SEPTEMBER 21. In this country, “sheaf corn” is universally “hooded”—covered with two sheaves inverted,—as it is set up in “shuck.”

HARVEST-
ING
SHEAF
CORN.

The universality of this practice is of late date. But it being obvious to common observation, that, during a very wet harvest, the wheats which were hooded, saved themselves much better than those which stood naked, the alarm spread, and the practice of hooding has since become general.

If

10.
HARVEST-
ING
SHEAF
CORN.

If wheat be ripe, and the grain plump, this is a safe and eligible practice ; but,—when it is cut before the sap be well out of it, -or, if it has been injured by any disease, so that the grain is thin and shrivelled, and the chaf leathery and closely embracing the grain, as is generally the case of mildewed or otherwise blighted wheat, the practice of covering the sheaves, immediately after the wheat is cut, is, in my opinion, very improper management.

The Surrey and Kentish farmers, among whom the practice of hooding may be said to be unknown, are well aware of the benefit arising from wheat being well “ weathered ” in the field : if it be blighted, they even wish for a shower upon their uncovered shocks ; finding that the corn, in this case, not only thrashes better, but yields better, after having been thus exposed to the atmosphere.

With respect to thrashing, and of course with regard to yield, so far as clean thrashing encreases it, there can be little doubt, but that an alternacy of wet and dry will promote it. Expose a leaf or a flower to the atmosphere, and, after a few days, alternately wet and dry, it may be rubbed to powder between the fingers. But, if the same leaf or flower

flower be placed between the leaves of a book, or under a botanical press, it will acquire a tough leatherlike texture. Covering up the ears of corn, before the chaf has acquired a sufficient degree of brittleness, is, indisputably, productive of the same, or a similar effect.

At present, I am clearly of opinion, that all wheats ought to be more or less exposed to the atmosphere, in proportion to the states in which they have been cut, between the cutting and carrying.

If, at the time of cutting, the weather be unsettled, and much inclined to wet, cover up immediately, and afterward, when the weather becomes sufficiently settled, and safe enough for the purpose, uncover; keeping the ears exposed to the sun, wind, dews and moderate showers, until they be sufficiently weathered; and then, if circumstances require it, re-cover.

But if the weather be tolerably good, at the time of cutting, set the sheaves up naked, and, in that state, let them remain, until the ears be opened, the chaf loosened, and the grain mellowed; and then, if the weather be hazardous, cover them up, until the butts be thoroughly cured.

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IO.
HARVEST-
ING
SHEAF
CORN.

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333
333

10.
HARVEST-
ING
SHEAF
CORN.

These rules have been my guide, this harvest. The wheat being considerably mildewed, I let it stand, in naked sheaves, until it had had a shower, and then, as soon as the ears were thoroughly dry, covered it up securely.

It is observable, that sheaves should be set up north and south, not east and west; for in this case, the sheaves on the north side are several days later, in respect to fitness of carrying, than those of the south side.

SOIL
PROCESS.

I write from the experience of this year: when I have also had an opportunity of observing a striking instance of the evil effect of RIDGES lying east and west. The corn on the south sides of the ridges of No. 18 (not high ones) shot into ear, changed, and ripened, a week at least, earlier, than that of the north sides. At the time of reaping, the wheat on the south sides was, in some patches, too ripe, while that on the north sides was, in many places, literally green.

Similar effects took place on the north and the south sides of hedges.

Every year, no doubt, produces effects, in some degree similar; but I never remem-
ber

ber them so striking as they have been this year; when there has been a general complaint that wheat ripened very unevenly.

10.
HARVEST-
ING
SHEAF
CORN.

II.

SEPTEMBER 27. This morning, took a ride to "POLESWORTH STATUTE:" a hiring place for farm servants;—the only one of any note in *this* part of the country; and, probably, the largest meeting of the kind, in England. Servants come (particularly out of Leicestershire) five and twenty or thirty miles to it, on foot! The number of servants collected together, in the "statute yard," has been estimated at two to three thousand. A number, however, which is the less extraordinary, as Polesworth being the only place, and this the only day, farm servants, for several miles round, consider themselves as liberated from servitude on this day; and, whether they be already hired, or really want masters, hie away, without leave, perhaps, to the statute*.

SERVANTS.

C 2

Formerly,

* There are men in this country, and those possessing the most comprehensive knowledge of rural concerns,

II.
SERVANTS.

Formerly, it seems, much rioting and disturbance used generally to take place, at this meeting; arising, principally, from gaming tables, which were then allowed, and for want of civil officers to keep the peace.

The principal nuisance, at present, arises from a parcel of ballad-singers, disseminating sentiments of dissipation on minds which ought to be trained to industry and frugality. A ballad goes a great way toward forming the

cerns, who condemn, in the strongest terms, all PUBLIC HIRINGS of farm servants. Not on account of the waste time they occasion (which, however, in Leicestershire, where most towns and many villages have their statutes, is not inconsiderable) but as tending to vitiate the minds of servants, to render them fickle and unsettled in their places, and to make the good ones liable to be drawn away with the bad: condemning, not only public places, but FIXED TIMES of hiring; as tending to create, what in reality takes place every year in every district, a cessation of country business, during some days, and an awkwardness for some considerable time afterward; and this, in most districts, at a busy season.

MICHAELMAS is certainly an improper time. (See MIN. of AGR. and YORK. ECON.) and whether MARTINMAS or any other FIXED TIME be right, I will not pretend to say. The idea is *new* to me; and the subject of some importance.

the morals of rustics; and if, instead of the trash which is everywhere, at present, dealt out at all their meetings, songs in praise of conjugal affection, and a rural life, were substituted, happy effects might ensue.

If a Lord Chamberlain have a power of controul in the theatres, where the audience might *now* be presumed to be *themselves* sufficient judges, how much more requisite it appears, that a high constable, or a higher officer, should exercise a similar authority over the productions to be delivered at a fair or a statute.

II.

SERVANTS.

12.

OCTOBER 2. Observed an instance of spreading dung out of carts. See vol. i. p. 198.

SPREADING
MANURE.

Seven men and a boy, with four carts, were arranged thus: three men filling (the heap in the piece), four spreading out of two carts, and the boy driving between.

The spreaders stood two *upon* each cart; shaking about the manure (pretty ripe) with forks. Two horses in each cart.

C 3

When

12.

SPREADING
MANURE.

When the men had finished their respective sides, the horses were spoken to, and, having moved a few paces, were stopt again, before they had proceeded too far for the men to be able to join their work.

From this specimen, however, I have not formed any very high opinion of the operation. The situation of the men is awkward. Should they drop a forkfull by accident, or not scatter a lump in the manner intended, they cannot step to it, and give it a blow with their fork, or a kick with their toe; but where it falls, there it must lie: besides, driving on and stopping the horses, take up no small share of their time.

Nevertheless, I find the practice is used by some considerable farmers, and consequently merits farther attention.

13.

MARKETS.

OCTOBER 11. FAZELEY FAIR, held the first Monday after old Michaelmas. The largest fair in this country, for *fat* cows, and, lately, for sheep.

It is kept in two, or occasionally in three, grass inclosures. The sheep pens were pitched

pitched against three sides of a small paddock, of about three acres, with a few pens in the middle. The cattle headed against the hedges of a larger inclosure, of eight or ten acres; reaching entirely round it; forming a rich border; with a clump of sheep pens in the center: a fine sight! the ground green, firm, and dry, and the morning fine: altogether the best arranged, and the most comfortable, commodious fair I have seen. See GLO. ECON. vol. i. p. 110, and vol. ii. p. 232.

13.
MARKETS.

This fair begins with the day: being full fair between seven and eight o'clock. To-day, above five hundred head of cattle, and about three thousand sheep.

The cattle, chiefly fat or forward cows: some few cows and calves; with an unusual collection of bulls; chiefly offcast or aged. The buyers, butchers, from Birmingham, Wolverhampton, and other manufacturing towns. The bulls bought up chiefly for the collieries; going off in droves; many of them completely ugly.

The sheep, longwools of Leicestershire, and shortwooled mountaineers, from Shropshire,

13.
MARKETS.

shire, Staffordshire, and Derbyshire. Mostly ewes, to be put to the ram with some forward wedders, to be finished with turneps, on the light lands west of the Tame.

14.

FARM
BUILDINGS.

OCTOBER 13. Finished laying a BARN FLOOR with BRICKS, agreeably to the practice of this district *.

Levelled the floor: set the bricks edgeway *upon* mortar; but without any *between* brick and brick; placing them as close as their uneven surfaces would permit †.

The entire floor being paved in this manner, poured "grout," made of lime and water, of the consistency of thick gruel, by a pailful at once, upon the floor; working it into the joints with a broom.

Having remained two or three days to dry (the weather in this instance happened to

* To be covered, hereafter, with plank. See vol. i. p. 31.

† Bricks are sometimes "dressed" between wet and dry, as tiles, for this purpose.

to be very dry) gave it another dressing; working it well into the joints, as before: and, having remained two or three days longer to stiffen, the grout which lay on the surface (between wet and dry) was cleared off with a spade, a trowel, and a broom; and the joints pointed; by drawing the point of the trowel hard along them.

A floor, eighteen feet by fifteen, took seventeen hundred and fifty bricks, and about four bushels of lime*.

1750 bricks at 16s. with the carriage of them 13s.	-	-	2	1	0
Four bushels of lime	-	-	0	3	0
Bricklayer and labourer four days	-	-	0	11	4

£. 2 15 4

about 22*d.* a square yard, or 2½*d.* a square foot.

OCTOBER

* The grout is generally made of *mortar*, namely, a mixture of lime and sand; but in this case some *stale* lime was used.

15.

15.

MARKETS.

OCTOBER 25. TAMWORTH FAIR; held the 24th October, principally for sheep, with some fat cows, and lean stock.

About five thousand sheep; with about a hundred head of cattle.

The SHEEP; fat and forward wedders, and fat and store ewes, of the longwooled kind, with some shortwooled ewes, wedders, and lambs.

In the morning, the sheep "hung:" owing to a rumour of a great "drop" in the London markets: a circumstance which shows how much, and how far, the markets of the kingdom are influenced by the metropolis.—

Notwithstanding, however, this unfavorable circumstance, and notwithstanding the fullness of the fair, the demand was such that *every sheep!* (generally speaking) was sold by one o'clock: and at very high prices: a proof that, at the distance of a hundred miles, the influence of Smithfield is weak, compared with that of the markets of the neighbourhood; especially, perhaps, in the neighbourhood of manufactories.

Mr.

Mr. ——— sold fifty “sharhogs,” of the new Leicestershire breed, for thirtytwo shillings a head: a great price for yearling sheep: but, notwithstanding their age, they were the fattest sheep in the show: a circumstance attributed, by the advocates of the breed, entirely to *blood*. And an evidence strongly corroborant of this idea was, the circumstance of Mr. ———, a very considerable grazier, on the Melton side of Leicestershire, selling six score “twoshear” widders for less price: namely, about 30s. ahead, one with another.

What a difference in profit, to the graziers, upon these two parcels of sheep! The last year’s keep of the latter was worth nearly as much as the entire cost of the former. Yet these were “fast” and fit for the butcher; those forward, but still “loose,” and only fit to be put to turneps: and the fact was, the sharhogs were sold to a butcher; the twoshears, to the Hints and other turnep farmers; and this, notwithstanding they came off the best land.

How superiorly delicate is the business of grazing! How much depends upon breed!

Mr,

15.

SHEEP.

GRAZING.

15.
SHEEP.

Mr. —, whose breed is, in this neighbourhood, esteemed superior, sold his sharhogs for 27*s.* a piece: Mr. —, still superior in breed, sold his for near thirty shillings*.

16.

TURNEPS.

OCTOBER 29. HANDWEEDING TURNEPS is a good practice; and not expensive.

Upwards of twelve acres grown yellow with charlock, which had escaped the hoers, and some of the seeds of which were fully formed, took a man and a boy two pieces of days. The cost about twopence an acre.

If the last hoing take place early enough for the seeds of weeds to come to perfection, a handweeding is indispensably necessary to good management; though rarely given.

17.

HORSES
ON
CLOVER.

OCTOBER 30. Horses affect clover. A second crop of this herbage, which had stood until

* In these instances, something *might* be due to KEEP; but the great difference in produce was, beyond dispute, occasioned by BREED.

until it had got into full head, by reason of part of the piece being in corn, had a striking effect upon yearling colts, which had thrive very indifferently upon turf; but which, after they had been a few weeks on this clover, grew fat and sleek as moles. Even when it was nibbled off to the stumps, they hung after it, in preference to well grafted turf: so that notwithstanding its shrublike state, when they were turned upon it, no waste was made: every stalk was eaten up.

Perhaps from an incident like this, the singular practice of this country, with respect to the clover crop, was struck out. Set i. 267.

17.
HORSES
on
CLOVER.

18.

NOVEMBER 3. Finished landing up the SUMMERFALLOW of No. 9. to lie over the winter, for barley and grass seeds in the spring.

SUMMER
FALLOWING.

SUMMERFALLOWING, except in the common fields, is not a practice of this country. The "*pinfallow*" is the forte of the Midland farmer. He breaks up his wheat stubble, in autumn or winter, and, having crossed it, in the

18.

SUMMER
FALLOWING.

the spring, immediately sets about harrowing it; in order "to get the twitch to the top;" which done, he gathers it up into lands, sows his barley, reharrows, and having got some more twitch to the top, the fallow is completed. In this way, ninety-ninths of the inclosed lands of the district have been, and still continue to be, laid down to grass.

To a *winter* fallow, this is all that can be done: the sooner it is harrowed after the cross plowing, the longer the twitch has to lie on the surface to wither, and the more time the seed weeds will have to vegetate, before the seed plowing: but, at best, it can only be said to be an ingenious method of planting twitch: for although some of the bent grasses, and a smaller proportion of the couchgrasses (indiscriminately, here, called "twitch") are, by this means, brought to the top; yet a principal part of the latter, the chief enemy, is not only buried in the soil, but is broken into *sets* by the tines of the harrows, and *planted* among the pulverized mould, with every advantage that art can give it. Nevertheless, the practice of harrowing immediately after cross plowing is extended, not to the turnep fallow only, but
when

when it is made, to the summer fallow also : the Midland farmers appearing to be unacquainted with the advantage which a fallow receives, by lying in a state of roughness, so as to have a large surface exposed to the influence of the atmosphere.

In Surrey, Kent, and other fallowing countries, it is well understood that, without this roughness of surface, no radical cure can be effected.

In Norfolk, this idea is carried, perhaps, too far. A Norfolk farmer never begins to harrow, until he is ready to follow the harrows, almost immediately, with the plow ; without perhaps allowing sufficient time, between the two operations, for the seeds of weeds to vegetate.

This, in the early stages of a fallow, when the roots, and not the seeds, of weeds ought to be the main object of attention, is a venial crime ; but, to continue this practice throughout the fallow, is almost as great an impropriety, as to level the surface immediately after the second plowing.

Out of these two improper methods of treating fallows, a third and improved method

18.

SUMMER
FALLOWING.

cross it (turning the warps back again), *without harrowing*.

18.

SUMMER
FALLOWING.

Having lain a few weeks in rough plit, a fair opportunity was embraced of pulling it to pieces, with a pair of large harrows. I confess, however, that this harrowing was given, rather to save appearances, and to give in with the established custom of the country (set agog by so new a practice), than from any conviction of its being the most eligible measure.

Presently after this flight harrowing, I gave it a fourth plowing, lengthway; the weather then scorching hot: nevertheless, I forbore to harrow it, until it had been thoroughly parched.

The furrows were then broken, by one full tine of a pair of rough harrows, and, having lain a few days, till the fresh surface was perfectly dry, the harrows were hung, with traces, behind a light roller; and with these it was rolled and harrowed, day after day; first with rough and afterward with finer harrows; until the surface was as fine as a garden bed.

Immediately after this operation, three or four days rain succeeded, and some of the

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couch,

tough, bulky state, it must either be carried off or burnt, at some considerable expence, or lie a nuisance on the surface; an obstruction to the plow and harrow.

18.

SUMMER
FALLOWING;

Too much cannot be said in praise of the roll and harrow united, in working a fallow. By hanging the one to the other, drivers at least are saved: and the roots, necessarily pressed into the soil by the roller, are, by this method, most immediately released by the harrows; which never work better than when hung to a roller. In this instance it was a pleasure to see the operation; it gave the eye and the judgement such full satisfaction.

By way of experiment, MANURED two lands of this fallow, at the rate of about twelve loads of strawyard dung an acre. The whole to be sown in the spring, with barley and grass seeds, which are intended to be manured the succeeding autumn.

MANURE.

Will the manure, now plowed in, be beneficial, or detrimental, to the barley crop?

Will the manure plowed in, this autumn, with the present and fifth plowing (the soil to

D 2

receive

18.

MANURE.

receive one more plowing in the spring), or that to be spread upon the surface, next autumn, be of more service to the young grasses * ?

SPREADING
MANURE.

This manure was SPREAD OUT OF CARTS, agreeably to the practice of this district (see MIN. 12.), but with what appears to me an improvement.

The waggoner scattered it from the cart, in the usual way, and his boy broke the lumps and evened it, after him.

This double operation makes good work. But, query, is not the extra time, thus taken up, of a man a boy and a team, of more value than a penny a load—the highest price for spreading ?

Three horses a man and boy are, in this country, rated at seven shillings and sixpence a day, of eight hours : half an hour of which
is

* 1785 *September*. The barley received no obvious benefit from this manure : nor do the young grasses yet declare its use ! But the FALLOW has given such a flow of vegetation, the uses of the MANURE, if any have yet accrued, are the less discernible. Land which is naturally rich, and has lain long in a state of FOULNESS, wants nothing but a SUMMER FALLOW to render it highly productive.

is taken up in baiting ; bringing the coft to a fhillling an hour, or a penny each five minutes.

The difference between fetting on a load of manure in hillocks, and fpreading a load out of a cart, is not, I apprehend, lefs than ten minutes : fo that a penny a load appears to be loft, and the boy's time thrown away.

An advantage, however, of fpreading manure out of a carriage, is the prevention of hillfteads, and of the evil confequences arifing from them, where the manure is not prefently and carefully fpread ; the bottoms of the hillocks getting more than their fhare of the drefling.

Hence, ON THE WHOLE, perhaps, there is little or no difference between the two practices. There are three roads between London and Tamworth ; yet, though *widely* different, neither of them, it is faid, is even one mile nearer than another : neverthelefs, no doubt, many a *doughty argument* has been held, about which is on the whole the beft.

Thus it will *fometimes* happen, in rural affairs. But, more generally, there is one PREFERABLE PRACTICE ; which, if men would feek it induftrioufly, and *dispaflionately*, they would feldom fail of finding out.

18.

SPREADING
MANURE.GENERAL
MANAGE-
MENT.

19.

19.

MARKETS.

NOVEMBER 8. By way of making myself familiar with the BUSINESS of MARKETS, and of forwarding my general design, by an INTERCOURSE with PROFESSIONAL MEN, I have, since my arrival in this district, attended, for the first time, a weekly market; and dined, regularly, at a market ordinary*.

It is somewhat extraordinary, however, that I should have done this, almost unremittingly, for the last six or eight months, without having, until today, picked up one idea, worth bringing home.

It is true, I have not *fished* for ideas. Yet it is very remarkable that, in sitting in a company of professional men of the higher class, three or four hours, week after week, some valuable ones should not have risen, spontaneously.

Today, two or three were started which may be worth preserving.

The

* At the CASTLE at TAMWORTH.

The inclosure of Newton fields became the topic. Mr. ——— said the incumbent wanted “a sixth and a half” for the tithes. Mr. ——— (the venerable vicar of Tamworth, hale and handsome, at eighty!) said he had taken a “seventh” in a similar case, and he thought it a fair proportion *.

This led to the advantages and disadvantages of inclosing common fields.

The prevailing idea was, that it is disadvantageous to the tenant, during the first six or seven years after inclosing; by reason, he cannot, in less than that time, bring his land to a good “turf”—a full sward.

Appleby field was mentioned as a case in point; for, although it is now ten or twelve years since it was inclosed, the inclosures have not yet reached their most profitable state.

Newton fields, however, being of a more loamy, less clayey nature, it was admitted, that they would come some years sooner to “turf”, and consequently to profit: it being a rooted idea, here, that nothing can be done without “turf,” or natural grasses.

D 4

Mr.

* The lands, in this case, to be inclosed were chiefly, or wholly, *arable* fields: the meadows and common pastures having been formerly inclosed.

19.

INCLOSURES.

Mr. — observed that their old inclosures, at Newton, bear heavier wheat, than their common fields. These, he says, give a more beautiful sample, and, he does not deny, a thinner skin; but the kernel, he says, is more solid—more “steely;” and it was the general opinion, that “land which has got some turf in it,” grows the heaviest wheat.

GENERAL
MANAGE-
MENT.

Thus, mighty turf being the Midlander's idol, no wonder he is so tenacious of it, as to preserve it, with reverential care, by pinfallowing; lest, by a turnep or a summer fallow, he should destroy his turf, and therein destroy his hope.

From what I can understand, however,—by land's having turf in it is not meant, literally, at least not altogether, the unbroken sod or roots of grass, which remain undissolved in the soil; but is, more or less, a figurative expression, meaning that land which has lain some time in grass, will bear better or heavier corn, than that which has been under the plow, time immemorial; an idea perfectly well understood, throughout the kingdom: and, it is an opinion as universally received, that land which has been long under the plow, more particularly commonfield

monfield land, is prone to grafs *. And I never had, before today, any idea that commonfield lands were longer in acquiring a turf, than other lands which had been under the plow. Because I had never, till lately, known grafsland broken up, and laid down again to grafs, without having, during the time it was in tillage, received a turnep or a summer fallow.

What an endless labyrinth is husbandry ! I have, till now, considered it as an unerring rule to cleanse land, thoroughly, from every thing vegetable, before it be laid down to grafs. But, I confess, I now begin to be of opinion, that there may be cases, in which even this rule may be erroneous ; and the practice of this district, founded on long experience, strengthens my opinion.

I have frequently been struck with the rapidity with which the lands of this district acquire a *natural* sward : three or four years after they have been laid down, they begin to wear the face of old grafslands : yet it never

* See YORK. ECON. vol. ii, p. 87.

19.
GENERAL
MANAGE-
MENT.

never struck me, till now, that this new turf is raised out of the *ruins* of the old. For although a Midland farmer turns over his old turf, and takes a crop of oats; re-turns it, and crops it with wheat: which being harvested, he repeats the operation of turning over the old turf, twice, or perhaps thrice; pulling it about with the harrows, and disengaging it from some of its foulness;—yet it is still the old turf in ruins. The roots and seeds of the grasses, which formed it, are still there: for although the farmer has had two crops of corn, he has, at the same time, had two crops of grass; the roots of which a winter fallow, of two or three plowings, is wholly inadequate to *destroy*; though no doubt it gives them a considerable *check*: and this accounts for the received opinion, here, that the “second year’s seeds” are the worst grass: because the clover is then gone off, and the natural grasses, having been checked by the pinfallow, and kept under by the barley and the clover, have not yet recovered themselves: but, the third year, having nothing to struggle with, they *rise again*; resuming the appearance, and, in a considerable degree, the profitability of old grasslands!

What

What a new system of husbandry is this ! at first sight, slovenly in the extreme ; yet, it is possible, that before I have been twelve months longer in this district, I may conceive it to be, for lands which are equally productive of grass and corn, an eligible system of management.

19.
GENERAL
MANAGE-
MENT.

A turnep or a summer fallow delays the laying down to grass a year extra, and the hoe or the plowing, and the exposure through the summer, do more toward the extirpation of the turf, than all the five plowings of the pin-fallow system.

Extirpating the roots of twitch and other root weeds, without destroying those of the better grasses, is the leading principle of this plan of management : and if, by a winter fallow, judiciously conducted, the former can be kept so much under, as not to prevent a profitable turf from forming, the practice is least plausible.

The labour and expence attending this plan of management is small. Five plowings in ten years, and a crop every year *.

An

* But see vol. i, p. 195.

19.
GENERAL
MANAGE-
MENT.

An evident IMPROVEMENT of this system of management presents itself. If the PIN-FALLOW cannot be got clean enough for BARLEY, continue to fallow, until the soil be sufficiently cleansed, and then sow the grafs seeds, WITHOUT A CORN CROP.

The herbage, *even the first year*, becomes, under this management (I write from sufficient experience), of considerable value (proportioned, of course, to the time of sowing and other circumstances), and, by having an opportunity of sowing seeds, repeatedly, through the summer, wherever the first sowing may miss, a clean full crop, *the ensuing years*, may be had with a degree of CERTAINTY: advantages, these, which in the end would probably be much greater, than a crop of corn in the first instance, succeeded by a series of deficient crops of herbage *.

20.

SOWING
WHEAT.

NOVEMBER 13. The clover ley of No. 3. being somewhat too dry for plowing (in the middle of November!), the plits broke, and
“reared;”

* See as above.

“reared ;” leaving the surface rough, and full of chafms, or gaping seams.

20.

SOWING
WHEAT.

To do away this evil, I rolled it, before sowing. But the job half done, the roller broke ; and, by way of a substitute, the plowman turned the harrows upon their backs, and drew them over it, with their tines uppermost, before sowing.

Their effect, in this instance, was superior to that of the roller : as instead of pressing down the protuberances, the harrow bulls cut them off, and left them in the hollows ; at the same time, plaining off the upper edges of the plits in general ; lodging the loose mould at the bottoms of the seed seams ; and this without taking off too much of the mould, or filling the seams too full, to prevent the seed from being sufficiently buried *. A pair of heavy harrows might, in this respect, have done mischief. Those made use of were common onehorse harrows of the middle size :
a pair

* In this case, the soil was deep and mellow : on a thin or stubborn soil, taking off the combs of the furrows might have a bad effect ; as robbing the harrows, in the act of covering the seed, of too much of the loose mould.

20.
SOWING
WHEAT.

a pair of them being drawn, by two horses abreast, once in a place.

Invention, perhaps, could not devise a better implement, for the purpose; and no other implement, whatever, could be so *convenient*.

21.

HIGH
RIDGES.

NOVEMBER 20. In passing through Shur-
tington field, I entered into conversation
with some plowmen,—who were plowing in
wheat,—upon the subject of HIGH RIDGES.
An old man, who was sowing, drew up and
joined the conversation. “Yea, Sur, we
mun lie ’em up a-thiffen, or we canno get
onny wheat. An us lie ’em flat o’th top, ’t
first pass of rain runs ’em into lakes, and sets
th’ crop. It hen been tried a many time; but
it wunno do.”

“Well, but how is it, friend, that, when
you inclose common fields, you bring down
the lands?”

“Yea, yea, Sur, when thy ha’ gotten some
turf in ’em, they wunno run athaten: but
here we fallow, fallow, fallow, every three
year,

year, every three year, till they runnen like lime welly : and if they dunno lien up sharp, we canno get onny wheat skant."

Thus, in a few words, did OLD GEORGE BARWELL explain that, which has puzzled the learned, from the beginning of time, until now.

The barley lands, I see, are likewise gathered up sharp, to lie over winter, and to be slit down and regathered with the seed plowing, in the spring : yet, even in this rooflike state, I find from enquiry, all the farmer dreads is a "pash of rain !"

The same kind of experience, no doubt, raised the still more mountainous ridges of the vales of Gloucester and Evesham* : yet, is it not astonishing, that the real motive for the practice should not be more generally understood ?

22.

NOVEMBER 20. In this country, the waste of malt is beyond measure. Beer and ale are not only brewed unreasonably strong ;
but

21.

HIGH
RIDGES.SERVANTS.
BEER.

* See GLO. ECON.

22.

SERVANTS.

BEER.

but the quantity allowed to workmen is unnecessarily great. That which is termed "beer" or "small beer" is nearly equal, in strength, to the harvest *mild ale* of many counties.

In hay and corn harvest, the customary allowance is, a gallon of beer a man (in hot weather they drink more), and, beside this, mowers expect two quarts of ale, and never have less than one.

Reapers have no regular allowance of ale; but, nevertheless, expect a little "drink."

With some difficulty, I got turnep hoers to accept of two quarts of beer, and one of ale: they wanted two of beer and two of ale! enough to stupify any man, and to make a *sober* man drunk, from morning to night.

During the winter months, the quantity of small beer drank is not much less, than in harvest. Mr. William Moor of Thorp, a leading man in this neighbourhood, allows his labourers a gallon a day the year round! Each man has his gallon bottle filled in the morning, and what he does not drink, he takes home to his family. His motive for establishing this custom, I understand, was that

that of his men, when they had the beer cask to go to, or had it given them, whenever they asked for it, by careless wasteful servants, getting drunk, or becoming so muddled and stupid, as to be unfit for their work: and, upon other farms, this it seems is no uncommon case. It is usual, in farm houses, to draw beer in a two-quart copper-cann; and there are men who will see the bottom single handed. Two men seldom fail of emptying one of them at a draught. This being the case, it is wise to allowance them; for, under this regulation, they drink no more, probably, than is serviceable to them; carrying home, to their wives and children, that which, if drank, would probably have done them harm.

So great a tyrant, however, as custom is said to be, I am of opinion that, if the farmers of this country were to pay money out of their pockets for their malt, this shameful waste of it would be put a stop to. And I am persuaded that nothing but the practice of malting their own barley, at PUBLIC MALT HOUSES (the prevailing practice of this district) could prolong so extravagant a custom.

23.

RURAL
KNOW-
LEDGE.

NOVEMBER 21. The idea of keeping a CALENDAR, of the practice of a district under survey, never struck me until today.

MINUTING is one method of catching, or rather retaining, ideas: an ANALYTIC REGISTER commands a general view, and discovers a variety of useful objects, which mere minuting might overlook: and a CHRONOLOGICAL REGISTER, by viewing the wheel of agriculture, as it turns round with the seasons, and catching the several processes and operations, as they pass under the eye, becomes a third species of idea-trap; not less requisite than the other two.

Is it not extraordinary, that a mean so obviously eligible, now that it is known, should not have occurred to me before! If it were put in practice, at the end of every month only, the advantages must be considerable. For, in an undertaking so arduous, as is that of collecting the rural affairs of a district, too many sources of information cannot be opened.

The

The farmer's year begins at Michaelmas. His last year's crops are then harvested, and he is then beginning to sow and prepare for those of the succeeding year: I will, therefore, open my calendar with the month of OCTOBER *.

23.
RURAL
KNOW-
LEDGE.

24.

DECEMBER 4. The letting of a large farm never fails to become, in the neighbourhood in which it is situated, a popular topic of conversation.

MANAGE-
MENT
of
ESTATES.

A farm, of three or four hundred acres, has lately been let, in this neighbourhood, to a man about thirty years of age.

The general idea respecting this transaction is, that it was imprudent in a man, *at that time of life*, to engage in a farm of such magnitude.

E 2

In

* In pursuance of this idea, I afterward kept a journal of occurrences, the contents of which have assisted me, very much, in correcting the foregoing register of the practice of the district: and an abridgement of it will appear in these Minutes, at the close of the year.

24.
MANAGEMENT
of
ESTATES.

In Norfolk, a man will take a *lease*, at fifty or sixty : here it is thought that a *tenant at will* should enter at eighteen or twenty, and hand down the possession to his posterity.

What a striking instance, this, of the *confidence* which still remains, with the tenantry of this district. And it may be a moot point, whether under such confidence, well placed, as it still remains to be in this district, leases, or no leases, are, in a general point of view, including landlord, tenant, and the community, most eligible.

December 1789. Unfortunately, however, for the tenant, in this instance, his farm (part of a considerable off estate of a nobleman) is now on sale, or fold, and the very expensive improvements which he has been making, are, probably, in a great measure sunk.

25.

FARM
BUILDINGS.

1785. JANUARY 20. It is difficult to conceive a worse farm yard, than this was,
nine

nine months ago. It naturally inclines steeply toward the north, with a barn and hovels to the west, and with the house and stables to the east; but lay entirely open to the north; except a hovel and a short range of sheds, which stood at the bottom of it; but between which and the sheds was a pit, four or five feet deep in mud and water, which prevented the yard stock from getting near it for shelter. They might as well have been exposed on the top of Bardon Hill, as in this yard*.

The area of the yard—the foddering place—(scooped into holes) lay with so great a descent, the best of the dung was washed away by heavy rains; and, when the pit was full, ran down a ditch, entirely waste: though lands,

E 3

below,

* A labourer tells me that, during a very severe winter, the cattle, in this yard, were so perished with the weather, that the tips of some of their ears rotted off!

These circumstances, nor those which follow, are not mentioned to set off this petty improvement; but as cautions and hints to those, who have the laying out, and improvement, of farm yards: a subject which has, heretofore, been very much neglected; but which, of late years, has been more attended to; and which still remains an object well deserving attention,

25.

FARM
BUILDINGS.

25.
FARMERY.

below, lie particularly convenient, for watering.

The evident principle of improvement was that of building a range of shedding (an open shed in the middle, with a fodder house at each end, much wanted on the farm) across the lower side of the yard, to defend it against the north winds: but the exact situation of this building was difficult to determine.

A degree of elevation was necessary to give the required shelter; but, to place it above the pit, would have contracted the area of the yard, too much. It was, therefore, run across the hollow; raising up the floor, in the middle, level with the yard, at the ends; leaving a deep pit behind, for the drainage, and a shallow one in front for the dung, and to receive the fullage of the several buildings.

The utility of this dung pit, made wider and more commodious by the general discharging of the yard, is evident. Had the rain water run through the yard into the pit below, without a check, much of the dung would have been carried away with it: but, by raising the mouth of the fough, or channel

nel of communication between the two pits, some height above the bottom of the dung pit, by means of a grate and a covered drain running immediately beneath the floor of the shed, little more than the tinctured water passes away; leaving behind it, a first deposit, in the dung pit: and, having arrived in the lower reservoir—here provincially the “sock pit”—it makes a second deposit: by which the water is, in a great measure, disburdened of its riches. And, finally, when the lower reservoir becomes surcharged, with this clarified tincture, it is thrown over the land which lies below; so that, generally speaking, not a particle of manure is lost.

The uses of a DUNG PIT scarcely need to be enumerated*. In winter, when the reservoir is filled with dung, the quantity of water is inconsiderable; merely sufficient to moisten the bottom of mould on which the dung lies; in spring, when the dung is turned up, a little water may be made essentially serviceable, in moistening the heaps,

E 4

and

* See MINUTES OF AGRICULTURE.

25.
FARMERY.

and thereby promoting their digestion *; and in summer, after the dung is carried out, a pit becomes the most eligible receptacle, not for stable dung only, but for offal and “orts” of every kind: for, by being sometimes moist and sometimes dry, the compost ripens much faster, than it would in a perpetually parched situation.

Upon the whole, from what I have yet experienced of it, the PLAN (executed in this instance on a small scale) appears to be nearly perfect: though, I confess, I cannot take to myself much credit; it having grown out of circumstances, and a kind of necessity, which could not easily be overlooked or avoided.

26.

VERMIN.

JANUARY 24. A striking instance of the industry and mischievousness of MICE occurs in the intended plantation *B.* in the corner of No. 3.

This field was, in autumn, sown with *wheat*: the nook, an *oat* stubble; and has not

* See MINUTES 45, 47, and 57.

not borne wheat for many years: yet, on digging it, a large hoard of wheat was found, some four or five yards from the fence of the wheat field, and between which and the nook is a very high bank and deep ditch (see MIN. 123.) across which every grain must have been carried, and, perhaps, one at a journey!

The workman thinks the hoard consisted of near half a gallon of wheat: if of one quart it corroborates, strongly, the idea of mice being more mischievous than moles, to the farmer. See YORK. ECON. v. i. p. 377.

26.

VERMIN.

27.

JANUARY 25. In opening the shore of the meadow, No. 6. the workmen found a large stone, with a channel along its middle, and with a hole through it, at one end.

One of the labourers, an intelligent man, says it has been the soal of a floodgate, for FLOATING THE MEADOW UPWARD: namely, penning up the water, in times of floods, by means of a dam and floodgate, across

WATERING
GRASSLAND.

27.

WATERING
GRASSLAND.FLOATING
UPWARD.

across the bottom of the meadow or flat to be watered.

This he says was, formerly, the method of floating meadows; and, in corroboration of his assertion, farther says, that about twenty years ago, he living servant to Mr. — of —, his master fetched a load of stones for the purpose of repairing a dam and flood-gate of this nature: but, having travelled, he told his master, the dam and floodgate ought to be set across the *top*, not across the *bottom* of the meadow; and, soon after, it was watered, agreeably to the modern method.

Across the home meadows, there are not less than four or five of these dams: not particularly against the hedges (as in the above instance), except one at the bottom; but across the areas of the meadows; wherever the valley or dip happens to be contracted, by rising ground on either or both sides.

These banks have frequently struck me. At first sight, I took them for old roads across the meadows; but, on examination, I found that they are formed of mould, not of hard materials. I afterward imagined that some
whimsical

whimsical or extravagant occupier had chosen to have a chain of waters, from the top to the bottom of this valleylike dip; either for the purpose of ornament, or of fish. But Randal's intelligence explains the matter fully*.

In looking, today, for something similar to these dams, in meadow No. 6, I perceived that the hedge bank, in the foot of which the stone, with some brickwork, was found, is evidently a dam, adapted to this purpose: for, notwithstanding this meadow, like the others, lies dishing in the middle, the hedge (which I will warrant two hundred years old) stands upon a bank, as level from one side of the meadow to the other, as the head of a modern-made piece of water.

In order to satisfy myself most fully respecting so interesting a fact, I enquired of Old Barwell (who lived upon the estate when a lad, and who, having since worked several years upon it, knows more of the farm probably than any other person) in general terms, for what use he supposed these banks to have been raised? He answered,

* Several stones, similar to that above mentioned, which lie scattered about the yards, are farther evidences of the fact.

27.
FLOATING
UPWARD.

27.

FLOATING
UPWARD.

answered, without hesitation, "for flooding the meadows." I asked him if he could recollect their being in use? He said, "No, they have never been used in my time" (seventy years). But he speaks familiarly of the practice: says, the waters were not suffered to stand long upon the land; but so soon as it was judged that they had left all their sediment, they were let off: and he speaks of the benefit arising from this method of using flood waters, as having been considerable: but thinks that the method of floating meadows, by means of "floating trenches," coming into practice, and being found more advantageous, than the old method, this became oldfashioned, and grew out of use*.

These questions led on to another interesting particular. He says, that in the parish of Austrey, where he was born, it has been the custom, ever since he can remember (sixty years), to throw the rich waters, which
are

* I publish this minute to prolong the remembrance of an operation in husbandry, which, to tradition, may be in a few years lost, and which, perhaps, is nowhere on record.

are collected, in rainy seasons, on the common fields, lying on the side of the hill above the village, over the meadows, which are situated below it,—by means of floodgates and FLOATING TRENCHES, somewhat agreeably to the modern practice.

But, what is still more interesting, he further adds, that the farmers did not only make use of the waters from the fields and the wash of the town whenever floods happened, during winter; but, in the month of March, were ready to quarrel about who should have the “marly hard spring water” which rises, in considerable quantity, out of the side of the hill; and which, though as clear as rock water, they found of essential, and most immediate, service to their meadows; giving an almost instant greenness and flush of fine sweet grafs. It being observable, however, that if they remained too long upon them at once (as more than a week), a scum was liable to rise, to the injury of the herbage.

The idea respecting these waters, which are still I understand in use, is, that they contain a “warmth” at that season of the year, which causes their good effect.

But

27.

FLOATING:
DOWN-
WARD.

27.

FLOATING
DOWN-
WARD,

But query, is it not rather some calcarious quality, imbibed by the water from the marl, which causes the beneficial effect?

See MIN. 39. in which this idea is confirmed.

28.

FARMERY.

JANUARY 29. A FENCE is an encumbrance to a CATTLE SHED; and yet a shed, which fronts into a principal yard, is inconvenient without one; rendering the yard in a manner useless, for loose cattle, as well as for swine; which cannot be kept, with any degree of propriety, in a yard with open cattle sheds.

In this point of view, a small quadrangle, apart from the main yard, with a dung place in the middle, as Mr. —'s of —, is a more eligible situation for sheds, than an open farm yard; for in that case no fencing is required.

Mr. — of — has a range of cow sheds, in a separate yard; but it forms one long unbroken range; the other three sides lying open, without a building, or a tree, to break the wind: the consequence is, Mr. — is obliged.

obliged to hang up a hair cloth, behind his cows, in severe weather.

28.

FARMERY.

Mr. ———'s of ——— front into the general yard; and have, therefore, *fences* to them; composed entirely of *gates*.

But this, I think, is ill judged: gates are expensive, and are liable to be frequently out of repair: yet when the shed is narrow, a number of gates are necessary. I have therefore determined on half gates, half paling, resembling the gates; and it thus far appears to be as commodious, as a fenced shed can be.

But, I am clearly of opinion, that when sheds are not wanted, as a shelter to the main yard, they ought to be placed in a separate yard: not, however, in one long range; but in such a manner as to form three sides of a quadrangle, or square, open to the south; with two fodder houses in the northeast and northwest angles, or corners; the north side forming a leanto, or being otherwise conveniently situated, to the barns; with a hay rick yard on one side; and the dung yard in the center: admitting the yard pigs, while the cattle are let loose to water, or to stretch their legs, and clean their coats.

JANUARY

29.

FARM
BUILDINGS.

29.

CHARRING
POSTS.

JANUARY 30. The partition posts of this shed standing perpetually dry, I put down unburnt; but those of the fence, which stand in a peculiarly awkward situation, between wet and dry, I CHARRED, agreeably to the Norfolk practice; and in the following manner:

Dug a trench, eighteen inches wide, eighteen inches deep, and six feet long. Aired it, by burning some straw and a faggot or two in it, previously to laying down the posts.

This done, laid three posts across the trench; placing the part to be burnt, namely, the part purposed to stand between air and earth, immediately over the fire; thrusting the fuel (dry small oven faggots) in at the windward end of the trench.

As one side became charred, another was turned downward; and, to prevent the fire from spreading too wide (reaching too high up the post) wetted the part, not intended to be burnt, with a mop dipped in a pail of water; or tied a wet straw band round the post in the part where the fire ought to be checked; pouring water from time to time upon the twisted straw.

The

The posts having been repeatedly turned, on all sides, until white ashes began to form on the surface of a black coat of coal, about one tenth of an inch thick, they were removed, and their place supplied with others.

Chips are preferable to faggots, as fuel in this operation; as they can be dropt in between the posts, wherever an increase of fire is wanted.

29.

FARMERY

30.

FEBRUARY 4. A striking instance of the different natures or qualities of sheep; with respect to thriving, arose in conversation.

SHEEP.

A grazier said that he had, this morning, been looking over and paring the feet of his "sharhogs," which were bought of different hands, but at nearly the same prices, and have had uniformly the same keep, for near twelve months. Yet there is, now, a difference in their respective values (merely from a difference of constitution) of at least ten shillings ahead*.

FEBRUARY

* I do not mention this as an extraordinary circumstance; but as one of many instances which prove the great propriety of attending, closely, to the inherent properties of livestock.

VOL. II,

F

31.

31.

MARKETS.

FEBRUARY 5. The ideas of the farmers of this neighbourhood, in regard to carrying out corn, or other produce, appear to be very erroneous.

In selling some oats to a corn buyer, he made 18*d.* or 2*s.* a quarter difference in price, between delivering them at Tamworth, three miles from this place, or at ———, eleven miles!

Five horses would take fifteen quarters with ease. If a man a boy and five horses had taken them the shorter journey, it would have broken into their dayswork, and have nearly expended one of the short days of this season; and going the longer was but a moderate dayswork. Yet for this piece of a day, not worth five shillings (with the extra turnpikes 18*d.* or 2*s.* more), there was, by taking them the longer journey, an earning of twenty to thirty shillings.

BUT the show-team farmers, it seems, are afraid to make their horses sweat: the only thing, perhaps, which would preserve them from

from the greafe, and other foul diforders. It is difficult, I understand, to perfuade the farmers, on this fide of Tamworth, to carry their produce to the other fide of it, for almoft any advance of price.

This however may, perhaps, be accounted for, otherwife than in an over indulgence of horfes. Effects fometimes continue after their caufes ceafe. Formerly, the roads, in the neighbourhood of Tamworth, were bad beyond a parallel. That between Statfold and Tamworth was proverbial : and immediately on the other fide of it, the paffage was equally intolerable, and more dangerous; the road paffing, for a confiderable way, thro' waters; which, in times of floods, were impaffable. No wonder, then, that, *in thofe days* (not more than fifteen or twenty years ago), the farmers fhould be afraid of venturing their teams far from home; or that they fhould make 18*d.* or 2*s.* a quarter difference, between a fhort and a long delivery. This difference, and thefe ideas, having been deeply emprinted, by the practice of ages, ftill remain, in a great meafure, unobliterated: notwithstanding the roads are, *now*, confiderably improved, and the worft of them made travelable turnpike.

F 2

The

31.
MARKETS.

31.
MARKETS.

The error remains equally strong in master and servant. Notwithstanding John had loaded his waggon over night, and gone through all the parade of preparation necessary for a journey to London, I heard him up at one o'clock in the morning, and, I understand, he set out between three and four, to go eleven measured miles upon a turnpike road ! But John is an old waggoner of this neighbourhood ; trained up at Sierfcot, Dunnimeer, and Hogshill ; and has been used to drag his waggon, for miles, through mire to the axle ; —to be “ stalled ” at every hundred yards ; and to be doubtful whether he and all his horses should ever see the stable again *.

FEBRUARY

* This minute is not published in exultation ; but to show the prevalence of custom ; and as a striking evidence that many of the present errors of practice, throughout the kingdom, may have originated in right management ; and are now become erroneous, merely through an alteration of circumstances : and a principal work of IMPROVEMENT, in every district, is to correct these errors, by adapting the PRESENT PRACTICE TO PRESENT CIRCUMSTANCES.

32.

32.

SURFACE
DRAINING.

FEBRUARY II. This farm, a few months ago, might be said to have neither shore, ditch, nor surface drain upon it. The waters of rain flowed out of the bottoms of the hedges, over the adjacent lands, on which it stood for want of proper drains to convey it off; and for want of common shores to receive it. The ditches were not only choaked with drift sand and leaves, but full of grass and weeds to the brim; and many of them with blackthorns, as thick as the wrist, rising from their bottoms !

Last spring, I had neither leisure nor opportunity to remove the evil; the frost continuing late in the spring: nor, indeed, is SPRING a proper season for draining land; which, at that time, is full of water, as a wet sponge: AUTUMN, when the soil and its substrata are firm and free from water, is beyond a doubt the fittest time. See NORF. ECON.

In October, I began to open the main common shore of the farm; with the several cross

F 3

and

32.
SURFACE
DRAINING.

and lateral ditches which lead to it :—and, having relieved one side of the estate, I proceeded to the other ; opening, or rather cutting, a less considerable shore ; pursuing its natural branches, and their terminating ditches, to where the water hung.

Having thus prevented the uplands from overflowing those which lie below them, I opened such outlets and fresh drains, in the meadows, as will, in future, draw off the water which has heretofore lodged on their surfaces, to the great injury of the herbage.

I am of opinion, that the last year's crop was several tons deficient, through the evil effects of stagnant water. At a distance, or on a cursory view, the herbage looked full and well ; but, when it was mown, the swaths fell into a small compass ; consisting chiefly of seed stalks, without any bottom grasses : the ground being in a manner bald ; or resembling a head which is thinly haired.

CUTTING
HEDGES.

Where the ditch, serving as a common shore, required to be much enlarged, or the hedge, through age or ill treatment, required to be renewed, I cut the latter to the stub, and earthed up the roots, and levelled the bank, with the vegetable mould from the ditch ;

ditch; making a banklet on the opposite brink, with the worst of the bottom mould.

But, where the hedge was young-grown and pretty full at the bottom, and the ditch wanted merely to be shovelled out, to prevent its overflowing, I only trimmed the face of the hedge: not close to the stem; but so much of the spray only, as prevented the workmen from scouring the ditch: afterwards levelling the face, so that the bottom shoots should not be over-hung by the upper spray; the point of every twig having, under this treatment, air and headroom.

With the mould of these ditches, too, I formed sharp banklets on the brinks, in part to defend the young shoots and to help the fence, and, at the same time, to place the mould in such a state, as would least incommode the grafs, and would be most exposed to the influence of the atmosphere; in order that it may become mellow enough, to be spread over the adjoining ground, without incurring any expence of team labour.

The mould raised out of the common shores I placed in a similar way, in sharp ridges on the brinks; and for a similar purpose; beside that of preventing stock from running across

32.

SURFACE
DRAINING.
MANURE.

the new made trenches, and treading in their sides, before they become firm and bound by the roots of the herbage*.

These several banks and banklets of mould lie in the best state, possible, for melioration: the grassy turves are buried under the crude substrata, which have already received a severe winter's frost, and which will, in the common course of seasons, be parched through, by the drought of the coming summer: while the fods, with their rough tussocks, will die, ferment, and not only be digested, themselves, but assist in the melioration of the crust or covering, which promotes their dissolution.

Next autumn or winter, the whole will be turned over, and mixt together; and having received the frost of next winter, and the drought of the ensuing summer, the mould will of course be ripe enough to spread, by hand, over the adjoining grass, immediately after the hay be off.

The

* The fods of the "foot trenches," or shallow surface drains of the meadows, were carted off and piled in heaps to meliorate: thereby freeing the area of the meadows, at once, from encumbrance.

The cost of this draining stands thus :

Opening 9 acres (of 32 yards each)			
of main common shore, at 5s.	2	5	0
———— 11½ acres of second shore,			
3s. 6d. — — — — —	2	0	3
———— 5 acres of shore ditch, at			
2s. 6d. — — — — —	0	12	6
———— 6 acres ditto, 15d.	0	7	6
Making 1½ acre of branch shore	0	2	6
Scouring 6½ acres of drain ditch, 1s.	0	6	9
Shovelling out 6½ acres ditto, 8d.	0	4	4
———— 35 acres ditto, 9d.	1	6	3
Opening 8½ acres of boundary ditch,			
20d. — — — — —	0	14	7
Cutting 29 acres of foot trench, 4d.	0	9	8
	£.	8	9 4

Thus, for eight pounds nine shillings and fourpence, one hundred acres of valuable lands are relieved from surface water; and the business, at the same time, executed in the most ample manner. Eight pounds nine shillings and fourpence, for laying dry a hundred acres of land for ten years to come : about twopence an acre a year : and the manure raised, will, with a little additional labour,

32.

SURFACE
DRAINING.

32.

SURFACE
DRAINING.

bour, be worth half, if not more than the whole, of the expence.

How much *plainwork* may be done for a small sum : and how soon a large one may be dissipated, on *ill judged projects* and *visionary schemes*.

An instance, in point, occurred, a few years ago, upon this estate ; where eleven pounds, or guineas, were expended on about an acre and a half of land, under an idea of rendering it fit for the reception of the wash of a farm yard ; but, in truth, for putting it in a worse state, than that in which it lay, before this *improvement* : and similar “ improvements,” of infinitely greater cost, are annually executed, in every quarter of the kingdom *.

FEBRUARY

* Should it be said that “ comparisons are odious,” I would answer,—They are the best guide to our judgement. I wish to impress the idea, which is here brought forward, on the minds of NOVITIATES, who are too liable to be led into FUTILE PROJECTS, while they are neglecting PLAIN SUBSTANTIAL IMPROVEMENTS.

33.

33.

FEBRUARY 22. A caution to the occupiers of extraparochial farms; and the owners of extraparochial estates.

MANAG.
of
ESTATES.

SIERSCOT, though within the bounds of the parish of TAMWORTH (very extensive), had, as to poor's rates, been extraparochial; having always maintained its own poor.

A few years ago, a pauper was brought, under an order of removal from some other parish, to Sierscot. The occupier refused to receive the pauper, who was, in consequence, taken to the proper officers of Tamworth; who, after representing, in a very liberal way, to the tenant and his landlord, the consequence which must attend their refusal, received the pauper.

This the corporation of Tamworth considered, of course, as a fortunate circumstance, and lost no time in assessing Sierscot to the poor's rate of their parish; and, on being refused payment, took the first opportunity of levying. This brought on an expensive

33.
MANAGEM.
of
ESTATES.

penfive law fuit ; backed both by landlord and tenant : who were caſt.

The conſequence is, that Sierſcot, which theretofore had not, perhaps, paid, on a par of years, ninety pence, to its own paupers, now pays the enormous ſum (for one farm to pay) of ninety pounds a year, one year with another, to the poor of Tamworth !

34.

TURNEP
MANURE.

MARCH 13. Some years back, when all the turneps of the country ſuffered, more or leſs, by the froſt, Mr. James Spooner of the Hill fold a piece of very good ones, at a high price.

The purchaſers, however, never made any thing of the major part of them ; which rotted entirely upon the ground, and were plowed under, for barley and clover.

The conſequence has been, not only the barley, the clover, and the ſucceeding turf, but the oats laſt year, ſhewed, to a furrow, how far the turneps were eaten off, and where they were plowed under.

This

This is an interesting incident (of the truth of which I have not the least doubt); recommending turneps, very strongly, as a manure.

34.
TURNEP
MANURE.

I have just sold the turneps of No. 1. twelve acres and a half, for twentyfour pounds, to be eaten on the farm (a good crop and a good price, I understand, in this country). What dressing, equally meliorating to that abovementioned, could be purchased for forty shillings an acre?

But I should imagine that many graziers would have given 25s. or 30s. an acre, to have let their fat sheep go over them; just to have taken off the head of the keep: and, I have my doubts whether this would not have been better, than poaching the soil with followers; or cutting it up by carting the turneps off.

An upland dry soil is better for being trampled; but such a soil as prevails here, receives, I should imagine, considerable injury by being poached by followers; and the followers, themselves, can receive but little benefit: unless, perhaps, in the spring, when the ground begins to get firm; and then, no doubt,

34.
TURNEP
MANURE.

doubt, it is better to eat the turneps clean, than to leave the bottoms in the ground : for, instead of rotting and becoming a manure, they get sticky, and lie in the way of the plow and harrow.

Perhaps, generally, on a strong retentive soil, sow turneps early ; run sheep over them, as early in the winter as conveniency will admit ; and let the bottoms rot on the land, as a manure. (This by way of intimation.)

35.

PITS.

MARCH 13. The same rage for filling up marlpits, and other holes, prevails here, as in Norfolk.

There are, in No. 17, two or three which most men would fill up : a work, however, which could not be effected, so as wholly to reclaim the land, for less than five pounds : and the quantity of useful land, gained, would not exceed a quarter of an acre ; and, out of these forty rods, twentyfive or thirty are occupied by a fringe of blackthorns, growing on the sides and round the tops of the pits, as a guard.

Employed

Employed two men in grubbing up these thorns ; beginning at the bottoms of the pits, or as near as water would permit, and rounding off the edges, as they worked upwards ; converting the steepes of the sides into slopes ; thereby gaining the principal part of the ground, and preventing danger.

For this I am to give five shillings.

35.
PITS.

36.

MARCH 27. In Yorkshire, I paid considerable attention to the HANGING of GATES ; not with *pivots* only *, but with *binges* ; and gained an adequate idea of the leading principle ; which, however, I did not commit to writing.

HANGING
GATES.

Here, I have had occasion to apply the principle to practice. But the true principle had escaped my memory ; a false one having supplied its place : namely, that the only thing needful was to throw the gate out of its upright, so as to lean toward the post ; no mat-

ter

* See YORK. ECON. vol. i. p. 195.

36.

HANGING
GATES.

ter whether this inclination of the gate were obtained, by the hooks, or the thimbles.

Led by this false idea, I had conceived that the simplest, and of course the best, way to hang a gate, would be to put the hooks in, exactly perpendicularly to each other, and to give the fall by the thimbles alone.

In consequence, I prepared a bottom thimble, with a clasp to take the hartree, and with an eye at each corner; in order that the gate might be occasionally hung, on one or other side of the fence, as the occupation of the inclosure might require, and with this thimble hung a gate.

The centers of the pins of the hooks being placed exactly perpendicularly to each other, by a plumb line, the gate was hung on. But instead of falling, this way or that, it stood stationarily, wherever it was set!

Thus finding myself at a stand, without any inclination to remain, long, in so disgraceful a predicament, I set the workmen to other work, and myself to investigate the PRINCIPLES OF GATEHANGING.

After musing some time, with the gate in my hand, and sketching my ideas, afterward, on paper, I saw clearly, and to demonstration,

tion, that THE FALL DEPENDS ENTIRELY UPON THE HOOKS: the AXIS OF MOTION is given by the situation of the HOOKS, with respect to each other; and, whichever way the AXIS OF MOTION inclines, that way the gate will fall*.

A gate should have what is called two falls: one at the post, to make it catch; and another at rightangle to the gateway, to prevent its standing open.

The QUANTITY OF FALL varies with the uses and length of the gate, and the judgment or fancy of the hanger. If a gate has too much fall at the post, it is liable to beat itself to pieces; if too little, it does not catch with sufficient certainty, and is liable to be blown open by the wind, and thus becomes a deception, rather than a safeguard.

On sufficient trial, I have found that, for field gates, one inch and a half at the post,

* The THEORY of this principle is easily demonstrable; but as it requires diagrams to explain it, and is merely *elementary*, it may appear with greater propriety, in another place:—I therefore give, in this, the PRACTICAL part of the Minute, only.

36.

HANGING
GATES.

post, and an inch at rightangle, give what appears to me a proper fall*.

With respect to THIMBLES, the only use of their being made in this or that form, is to counteract the obliquity or crosswinding of the hooks; so that the gate, when shut, shall hang plumb and level; or every way in a perfectly upright position †.

The top thimble being usually put into the middle of the hartree, with the eye as near to it as the shoulder of the hook will admit, the counteraction, of course, depends on the bottom thimble.

If

* The way to ascertain the true position of the hooks is that of taking a plumbing line (or any string with a stone tied in it), and, looking along the line of the fence or gateway, drive the hooks, or move the post, until the center of the pin of the upper hook appears, by the line hanging perpendicularly before the eye, an inch and a half nearer the middle of the fence, than that of the under one: and then looking along the line of the road (or perpendicularly to the gateway) see that the center of the pin of the upper hook stands one inch nearer the middle of the road, than that of the under hook; observing, likewise, that the pins of the hooks stand, not exactly upright, but in a line with each other, — forming one direct AXIS OF MOTION.

† Gates being liable to sag, or droop, by hanging, they should be hung rather above than below the level.

If the bottom thimble be made with two strong straps, to clasp the lower part of the hartree (as it always ought), with an eye on one side, or with two eyes, one on each side, and their centers three inches apart, and with necks projecting, when fixed, one inch farther from the hartree, than that of the upper thimble (or, more accurately speaking, with the center of the eye or eyes of the lower thimble standing an inch farther behind the hartree than the center of the eye of the upper one), the gate acquires, ON A CERTAINTY, the required fall, yet hangs level and upright when shut. But see MIN. 54.

36.

HANGING
GATES.

37.

MARCH 29. ASHBY STALLION SHOW, for the sale and letting of stallions; the only fair of the kind, I believe, in the kingdom. Some years ago, there were a few shown at Nottingham; but none, I understand, of late years.

MARKETS.
HORSES.

The horses which are brought to this show are all of the black carthorse breed (I saw but one coloured horse): chiefly young horses—

37.

MARKETS.
HORSES.

as "colts"—rising two years old—threeyear-olds,—and fouryearolds : some to be sold, others to be let for the coming season.

This show begins on Easter eve, continues on Easter Monday, and is succeeded, on Tuesday, by a fair for cattle and sheep.

The stallions come in, on Thursday and Friday ; stand in close stalls, at the inns ; and are led out, occasionally, into a back street, to be shown to those who desire to see them out.

This year there were about thirty on show ; esteemed, from what I can learn, a middling show : but so flat a market has seldom been known. There were only two fold (and none let) the two first days ! one of them, the best horse in the show, for a hundred guineas.

The flatness of this fair, at a time when young horses are dear beyond a parallel, and difficult to be picked up at any price, is a paradox ; and includes a mystery, which nobody seems able to explain. Great prices, it is true, were asked : nothing, worth purchasing, to be had under fifty or sixty guineas ; but, had the prices been lower, there were no buyers : a circumstance which, perhaps, can be accounted for noway better, than

than in the decline of the Leicestershire breed; or the improvement of the breeds of the districts to which the Leicestershire horses were formerly taken; as Warwickshire, Shropshire, Worcestershire, &c.

Some of the twoyearold colts were of extraordinary size, for their age. Mr. ——— had one not less than fifteen hands and a half or sixteen hands high, and as well furnished as most aged horses!

Shortbacked, squaremade, fullcarcassed horses, with four or five inches of fat on the ribs! were the favorites. A good deal of bone is still liked, and their manner of going much attended to: not so much as to activity, as to their trotting true!

38.

APRIL 19. It is a practice in this country to set fire to rough dead grass, at this time of the year; in order to clear the surface, for the young spring shoots.

Mr. ———, of this neighbourhood, a few days ago, in "burning his feg" set fire to a

G 3

dead

37.

MARKETS.
HORSES.

BURNING
DEAD
GRASS.

38.

BURNING
DEAD
GRASS.

dead hedge, at the back of a young quick, and burnt it down some considerable way; the fire scorching the live hedge in its progress. And a much more fatal accident happened, about a week ago, in Leicestershire, by the same means.

In the former case, the fire was stopped by making a gap in the hedge; but, in the latter, the hedge conducted the fire to a hovel, and the hovel communicated it to an adjoining village, in which seventeen houses with barns rickyards, &c. are said to be consumed!

But though these circumstances ought to serve as a caution to those who pursue this practice (which, by the way, can seldom be pursued with propriety), similar effects can seldom take place: the ground and every thing standing upon it are seldom so dry, at this season of the year, as they are at present.

39.

WATERING
GRASSLAND.

APRIL 24. In my ride this morning, I looked into the meadows below AUSTREY, which have, time out of mind, been watered in

in the spring of the year, by a rill which rises out of the hill above the village. See MIN. 27.

This year, I take for granted, the quantity of water has been small. By the sides of the floats, but there only, the grass is as green as a bed of leeks, and shoetop deep. At present, the water is so low, it is not even able to overflow the trenches, but sinks in them.

In a hollow, by the side of one of the floats, in which the water has stood, a white scum is left.

Seeing its appearance, and perceiving its taste, to resemble that of marl, I collected some of it, and find it to be most strongly calcarious! *

This appears to me a most interesting fact; as tending to show, that calcarious matter is not only suspendible in water, but that, in this state, it is highly beneficial to vegetation.

In situations, where waters of this quality cannot be rendered useful in watering grass-

G 4

lands,

* By analysis, ten grains of this scum yield eight grains of calcarious matter; leaving two grains of residuum; chiefly the broken blades of grass to which it adhered; but, in part, of a tough, indissoluble substance, whose properties I have not, yet, had an opportunity of investigating.

39.

WATERING
GRASSLAND.

CALCARIOUS
WATER.

39.
CALCARIOUS
WATER.

lands, might they not be collected, and be thereby induced to deposit their calcarious particles, in reservoirs, for the use of arable lands * ?

40.

WHEAT
on
CLOVER LEY.

MAY 7. An evidence that a CLOVER LEY (or any whole ground) sown late in AUTUMN, and in FROSTY WEATHER, should be sown on the FRESH FURROW, occurs in No. 3. The soil a good middle loam.

Three lands were caught in the frost, and lay some days before they could be harrowed. An adjoining land, plowed the next day, and sown immediately, is, to present appearance, twice the crop. The plants of the former are straggling, even to baldness; while the latter is a beautifully well stocked land of wheat;

* I afterward (in the wane of June) visited one of the sources of this rill. The channel, toward the mouth, was filled with the most luxuriant *FLUTE FESCUE*: the blades two or three feet *high*! and might have been collected, in quantity, as soiling. By widening the rill, and spreading the waters, a spring of this quality might be turned to considerable advantage, as a *manure* of this nutritious grass.

wheat : it has, I should suppose, near twice the number of plants upon it : though the quantities of seed were exactly the same.

40.
WHEAT
ON
CLOVER
LEY.

41.

MAY 11. A land of the fallow of No. 9. having been badly plowed (with a sharp ridge in the middle and a hollow on either side of it) and sown with barley, in my absence, I set out in the hollow on each side the ridge, and gave the outsides of the land an additional plowing : thereby laying it with a gentle even roundness, and burying the barley, of course, under a principal part of the soil.

SOWING
BARLEY.

The consequence is, this dry season, the part, thus replowed, is fully and regularly stocked, with fine healthy plants ; while the remainder of the piece, only harrowed in, has not half its seed come up ; the rest lying in the ground, as dry as when sown. This, too, comes up in seams and clusters : That, beautifully regular.

This incident shews that, in DRY WEATHER, BARLEY, if the land be in order, should

41.
SOWING
BARLEY.

should be PLOWED UNDER: and, at the same time, leads to an IMPROVEMENT in the method of SOWING BARLEY UNDER FURROW: namely, that of sowing previously to the last harrowing; or, in other words, of harrowing after the seed is sown: for by this means the seed, instead of running down into drills at the bottoms of the furrows, is distributed regularly, near the middle of the soil.

42.

QUALITIES
of
WATERS.

JUNE 5. The waters of the DOVE (of Derbyshire) are esteemed rich in a singular degree*.

This circumstance, rising as the Dove does among bleak barren hills, and without passing through a rich arable country, is interesting. Those of the AVON (of Worcestershire) are esteemed of a fertilizing quality; but this seems to be accounted for, in

* This Minute, with 148 and 149 on PLANTING, are part of the produce of an excursion, across NEENWOOD FOREST, to UTTOXETER, and thence to near ASHBURN in DERBYSHIRE.

in their being collected from the rich and highly cultivated lands of the Vale of Evesham. Those of the WYE (dividing Gloucestershire and Monmouthshire) are esteemed pernicious to the meadows on its banks; because (as is believed) they are collected from the barren hills of Wales.

The meliorating effect of the Dove is thought, by some, to be owing to the washings of the sheepwalks of the Peak Hills. But has not the Wye the same advantage? I rather suspect that its fertilizing powers arise from some quality inherent in the water itself: probably acquired from an intimate communication with CALCARIOUS or other FERTILIZING EARTHS. The scum of the Austrey water is a sufficient ground for this hypothesis: and there are men who speak of the limestone of the Peak.

It is a fact, well ascertained, that the hills of the Peak abound with calcarious, those of Wales, with chalybeat matter: circumstances which may, *perhaps*, account for the respective qualities of their waters*.

JUNE

* This, however, by the way; or, at most, to bring forward a subject, which requires investigation.

43.

TURNEPS.

JUNE 26. How dangerous to adopt general rules, and received maxims, in husbandry.

It is generally esteemed to be folly to sow turneps among dust: yet both Mr. ——— and Mr. ——— have turneps now up; and say, they never knew them to do better, than they do this unusually dry season! *

44.

POTATOES.

JUNE 26. I have observed, in my rides, frequent instances of the CORNERS OF ARABLE INCLOSURES (a part the plow cannot reach), and other vacant patches of ground, being planted with POTATOES, and hoed in a gardenly manner.

This is true economy: whether it be done for the farmer's own use, or whether he allows a labourer to plant the ground for his family.

The

* But see MIN. 61.

The latter, I find, is more generally the case: it being common, in this district, for LABOURERS to ask, and masters to grant, such indulgencies: a good custom. The labourers plant and clean them, in the mornings and evenings, at their own time; the produce must be of essential use to their families; and the loss to the farmer is little, if any thing. The balks and the headlands of this country will generally, when fresh, bring a tolerable crop of potatoes without manure: and the land, after the potatoes are off, is ready for any other crop.

44.
POTATOES.

45.

JUNE 30. The yard dung, for want of moisture this spring, has not *ripened*. Instead of digesting, in the heap in which it was piled, it has, in many parts, become mouldy, and is in an unfit state to be set on for turneps; the crop for which it is intended.

WATERING
DUNG.

Had the piles been *watered*, as they were formed, I am of opinion the benefit would have been great. A memorandum this, for the use of future management.

JUNE

46.

WATERING
GRASSLAND.

JUNE 30. Some time ago, Mr. SHEASBY of Tamworth showed me a MEADOW, on the banks of the Tame, which he can WATER, at pleasure, by a small brook or rivulet which runs by the side of it.

One small floodgate turns the stream; and three or four sluices, or outlets from the brook, feed the floats, distributed over the face of the meadow. It has been done two or three years: the whole expence some forty or fifty shillings! The quantity of ground, five or six acres.

The result, this year, is striking; for, notwithstanding the uncommon dryness of the season, and the unusual lightness of the hay crop in general,—this meadow is full of grass.

What an advantage! and this for a mere *thought*. The whole of the original expence comparatively nothing: for which he has a brook at his will: which brook, for want of the thought, or the spirit to put it in practice, has run waste by the side of these meadows, for ages past!

What

What a loss to the community ! Yet how many such rivulets run waste for want of a similar expence ; while sums of money are yearly laid out, in preparing grounds to receive *landfloods*, which, of course, never exist, but when the meadows are soaked with the rains which give birth to the overflowings.

Mr. S. for forty or fifty shillings, will this year get several tons of hay ; Mr. —, for seventy pounds, perhaps not a single blade of grass !

46.

WATERING
GRASSLAND.

47.

JULY 5. (See MIN. 45.) by way of experiment, threw a load (a wine pipe full) of water over the piles of dung, three or four days before the last carrying. The benefit, even in so short a time, is evident and great. It began to work the second or third day. The mouldiness has disappeared ; it being now (comparatively, at least, with what it was) rich, black, rotten dung !

WATERING
DUNG.

JULY

48.

IMPLE-
MENTS.

JULY 7. It is not unusual, in this country, for the larger occupiers to have a BLACKSMITH'S SHOP in their respective yards; a neighbouring blacksmith coming, once, twice, or thrice aweek, to do the work of the farm.

There is one, on this estate, which serves three or four farms. A man has full employment, two days aweek.

SMITHSHOP.

This is much preferable to going a mile or two with horses to be shod, and plow irons to be sharpened.

It is observable, however, that, in my several stations and excursions, I have not yet (to my recollection) seen a WHEELWRIGHT'S SHOP upon a farm: although, in my opinion, no considerable farm ought to be without one. Wheelwrights, everywhere, carry loads of tools about with them; yet frequently want, in a farm yard, many conveniences, a shop would supply.

JULY

JULY 7. This morning, made up a bank fence, on one side of a drinking pool, with fods taken from a surface drain, which was wanted to be made, in the adjoining grafs inclosure; wheeling them, in barrows, to the side of the pool.

SOD FENCES
and
DRAINING.

Thus two things were done at one expence: and without leaving an eyefore. Whereas, had the fods been hacked out, anywhere, as is generally the case, an ugliness, and a loss of grafs, would have been the consequence. Or, had the drain been made, without having a use for the fods, they must have lain an encumbrance, or have been carted off, as many loads were this spring, into heaps, to get them off the grafs.

How often are fods wanted for setting the face of a ditch, &c. &c. and, certainly, it is always worth a thought, whether some surface drain, in a contiguous grafsground, may not be at the same time wanted.

50.

50.

RAISING
MANURE.

JULY 7. I have employed two or three men, for the last three weeks or a month, in turning up yard dung, mixing heaps of compost of various sorts, and clearing drinking pools—laid dry by this drougthy season : all by the grofs.

My general rule of calculation has been a penny a cubical yard, for *turning over* and *mixing*. Where *wheeling* was wanted, the price varied according to the distance to be wheeled. See LIST of RATES.

It is obfervable that, in turning up manure of every fort, the price should be fo much a cubical yard, meafuring the pile, not before, but after, it is turned : for the lighter it is laid up, the fooner it will digest, and the more it will meafure : the interests of the employer and the labourers becoming, by this means, united.

51.

MOWING
PASTURES.

JUNE 10. From the experience of last year and this, I find that from threepence to
fixpence

sixpence an acre may be said to include all the prices, by the acre, for mowing the scattered weeds of pasture grounds. They must be very numerous if sixpence is not enough, and it is not worth a man's while to walk over the ground, for less than threepence.

Where there is much broken grass, or where the weeds are united in patches, higher prices are requisite *.

51.

MOWING
PASTURES.

52.

JULY 10. I am now emptying a small "pit-place"—a neglected drinking pool—which does not measure more than eighty square yards of surface; yet there will be fifty to sixty loads of manure arising from it; principally the roots and decayed stems, &c. of aquatic plants.

GROWING
MANURE.

Query—might not many low swampy places, too difficult to be drained at a moderate expence, or too bad to bestow much money

H 2

upon

* It is with some difficulty I prevail upon myself to publish these and other Minutes on MINUTIAL MATTERS. But in them the INEXPERIENCED are most liable to be defrauded. And for their government only, I publish them.

52.
GROWING
MANURE.

upon in draining, be planted, or sown, with some quickgrowing AQUATIC PLANT; and be overflowed, as a source of manure?

The first thing to be ascertained would be a proper plant for the purpose: one adapted to the given soil and situation, which would grow fast, and produce manure of the best quality. The next, what depth this particular plant (or plants) might require to be overflowed.

The thought, perhaps, is new; and may be worth pursuing*.

53.

CATTLE.

JULY 11. The price of cattle, at length, begins to fall (of lean cattle at least), and, as numbers must be killed, fat or unfat, the price, unless for prime meat, will of course drop.

GRAZING.

Fortunately for the graziers, stock was so scarce and dear, in the spring (see MIN. I.) that, in general, their grounds are understocked. Nevertheless, the drought has been

* For the valuableness of AQUATIC MANURE, See MIN. 111.

been so intense, and the grafs, in consequence, so short, that, although they may look well, the general complaint is, they do not improve, as fatting stock.

Mr. ——— asserts that he has some cows, which go upon good land, that is not more than half stocked, yet they are now as lean, as when they came out of the straw yard. A grazier of Northamptonshire is said to have offered, to sale, a parcel of oxen, at two guineas a head less than they cost him, in the spring. He foddered them with hay, some time after he bought them; and has, of course, given them the summer's grafs! and this is probably the case of numbers. Mr. ———'s cows would not sell for nearly so much, now, as he gave for them, in the spring.

Nevertheless, some Scotch bullocks, which I kept at straw until late in the spring, are already tolerably good beef: indeed, notwithstanding the circumstances above related, and the prevailing cry of the country, cattle in general, considering the state of their pastures, are in good condition; for although their pastures are as brown as fallows, and as bare as commons, cattle look sleek and healthy;

53.
GRAZING,

much better, it is allowed, than they did, some years ago, in a remarkable wet summer; when, though they rolled in grafs, they were poor as carrion.

SEASONS.

In a wet season, grafs is watery—weak; and in a dry one, it is rich and substantial; a great deal of nutriment being compressed into a small compass; the superiority of quality making up for the smallness of quantity:—" 'Tis hay and corn."

54.

HANGING
GATES.

JULY 12. (See MIN. 36.) But an inconvenience arises from setting a gate upright, by means of the BOTTOM THIMBLE, SOLELY. The bottom hooks are obliged to be left of too great a length, out of the post; thereby rendering them, if not made unnecessarily stout, liable to be bent, or loosened, and the fall of the gate to be destroyed. Yet I have never met with an instance of this evil being remedied, by setting the gate upright, by means of the TOP and BOTTOM THIMBLES, JOINTLY; raising the head, by lengthening the neck of the lower thimble; and

and preventing its leaning, by turning the eye of the top thimble toward the post, instead of placing it, as is usual, in the middle of the hartree.

54.
HANGING
GATES.

Being desirous, however, to give the required stiffness to the hinges, and, at the same time, to contrive a set of thimbles which would suit either side of the fence (for the purposes already mentioned) I gave the subject extraordinary attention, and at length reached, what appears to be, *at present*, the completion of the art of hanging FARM GATES: namely, that of setting the CENTER of the EYE of the BOTTOM THIMBLE *two inches* behind the *middle* of the hartree; and instead of making one eye in the end of the TOP THIMBLE, as is usually done, to slit the end of the rod or bar out of which it is made, and, with the two straps, to turn two EYES, one on either side, with their CENTERS *three inches* apart, and, when fixed, *one inch* behind the corner of the hartree.

This theory, however, did not strike me until I had nearly done hanging the whole of the gates I had made; one only remaining unhung. This, however, has given me a fair, and sufficient, opportunity of proving the
H 4 practicability

54.
HANGING
GATES.

practicability of the principle. The upper hooks are driven almost close home to the post; the centers of the pins being only one inch from it; and the centers of the pins of the bottom hooks only two and a half inches from the post; altogether the stiffest gate hinge I have seen.

On hanging this gate, an inconveniency arose, which I had not foreseen: it would not open sufficiently wide; being prevented, equally, by the extra eye of the top thimble, and by the arrice of the hartree: but, by rounding off *this*, and letting *that* into a notch or recess in the post, it may be made to open to the required width, and to stand at the required point without falling one way or the other!

And another advantage of a gate hung on this principle, it may (when hung at a distance from obstructions) be thrown wholly open, by placing the contrary eye on the top hook; and in this case, it cannot, through wantonness or mistake, be shut! an advantage which never struck me until I had hung the gate under notice!

How dark and difficult is the path of invention! Nevertheless, by grovelling along it,

it, with attention and perseverance, we sometimes stumble on that which we are seeking; but, more frequently, on things we never thought of!

54.
HANGING
GATES.

55.

JULY 20. Although I have pursued the study of BOTANY with greater eagerness, on account of its being closely allied with AGRICULTURE, I never *applied* it until this year.

BOTANY.

In NORFOLK, I minuted the corn weeds; in GLOUCESTERSHIRE, I attempted (in 1783) to make a list of grasses; and, last year, I CULTIVATED all the GRASSES and LEGUMES I could pick up; but I never, until within these few days, went into a meadow or pasture ground and collected a SPECIMEN of every plant growing in it, with a view to ascertain, in a summary way, the NATURAL HERBAGE of such meadow or pasture ground; and, now, I was led to it by an incident: so blind and dull we are at discovering new roads, which, when known, are obvious and short!

Being told that a certain piece of ground, in this neighbourhood, is esteemed the best
piece

55.
BOTANY.

piece in it for the cheese dairy, I determined to examine the herbage. The idea, and the method of putting it in practice, striking me in the hay field, I immediately set about collecting the grasses and weeds of the unmown part of the meadow I was in ; and, finding it at once easy and amusing, I extended my observations to other grounds.

At first, I gathered only *one* fruit stalk or leaf of each plant ; but finding, when I came to list the collection, that I was sometimes unable to recollect the proportional quantity of each species, I afterwards endeavoured to proportion the number of specimens of each plant, to the proportion it bore to the other plants of the piece.

In sorting and listing the specimens, I first separated the GRASSES, or useful plants, from the WEEDS, or noxious plants : in digesting each of these classes, I disposed those of which I found the greatest number of specimens, first, and the single specimens last : and, in listing them, I placed them down on the paper, in the same order, in which they lay upon the table : so that those which stand at the head of each list are the most common grasses, or weeds, growing in the ground to which the lists respectively belong.

Half

Half an hour spent in collecting, and half an hour more in digesting and listing the specimens, is time enough for ascertaining, sufficiently for the AGRICULTOR'S use, the herbage of a piece of meadow or pasture of twenty acres.

55.
BOTANY.

HERBAGE OF MEADOWS *.

Grasses.

Holcus lanatus—meadow softgrass.

Festuca elatior—tall fescue.

Phleum nodosum—bulbous cat-tail.

Lolium perenne—raygrass.

Anthoxanthum odoratum—vernal.

Alopecurus pratensis—meadow foxtail.

Trifolium pratense—meadow trefoil.

Plantago lanceolatus—narrow plantain.

Ranunculus repens—creeping crowfoot.

Poa trivialis—common poe.

Cynosurus cristatus—common dog-tail.

Trifolium

* MEADOWS: "dips, or shallow vallies, which have never been plowed; lying between swells of *arable* lands. The soil, a blackish loam, lying on a retentive clayey subsoil. The season dry. The several meadows from which this consolidated list is made, have formerly been "floated upward." See MIN. 27. Good hay ground: cutting, in a common year, about a ton and a half an acre.

55.
BOTANY,

- Trifolium repens*—creeping trefoil.
Agrostis alba—creeping bentgrafs.
Festuca duriuscula—hard fescue.
Sanguisorba officinalis—meadow burnet.
Lathyrus pratensis—meadow vetchling.
Vicia sativa—meadow vetch.
Dactylis glomerata—orchardgrafs, or foggrafs.
Briza media—tremblinggrafs.
Avena flavescens—yellow oatgrafs.
Hordeum murinum—common barleygrafs.
Lotus corniculatus—birdsfoot trefoil.
Trifolium procumbens—procumbent trefoil.
Heracleum sphondylium—cowparsnep.

Weeds.

- Ranunculus acris*—provincially “crowflower.”
Centaurea nigra—provincially “cockheads.”
Rhinanthus cristagalli—prov. “pennyweed.”
Leontodon taraxacum—dandelion.
Carduus palustris—marsh thistle.
Hypochaeris radicata—longrooted hawkweed.
Carex birta—provincially “sharegrafs.”
Chrysanthemum leucanth.—oxeye daifey.
Rumex acetosa—provincially “green sauce.”
Peucedanum filans—meadow saxifrage.
Carduus lanceolatus—provin. “boar thistle.”

Rumex

- Rumex crispus*—curled dock.
Prunella vulgaris—selfheal.
Bellis perennis—common daisey.
Achillea millefolium—common milfoil.
Primula veris—cowslip.
Betonica officinalis—betony.
Tragopogon pratense—goatsbeard.
Aira cæspitosa—haddock airgrafs.
Carices ——— sedges.
Cineraria palustris—marsh fleabane.
Potentilla anserina—provin. “goose tansey.”
Polygonum persicaria—provin. “willow weed.”
Cardamine pratensis—common ladysmock.
Lychnis flos cuculi—meadow campion.
Valeriana dioica—marsh valerian.
Achillea ptarmica—goosetongue.
Juncus effusus—common rush.
 ——— *inflexus*—wire rush.
Spiræa ulmaria—meadowsweet.
Equisetum palustre—provin. “joint grafs.”
Angelica sylvestris—wild angelica.
Myosotis scorpioides—scorpion moushear.
Lysimachia nummularia *.—moneywort.

HERBAGE

* The last fifteen grow on the cooler moister parts, only.

55.

BOTANY.

HERBAGE OF COOL MIDDLELAND*.

Grasses.

Cynosurus cristatus—common dogtail.*Holcus lanatus*—meadow softgrafs.*Anthoxanthum odoratum*—vernal.*Plantago lanceolatus*—narrow plantain.*Lolium perenne*—raygrafs.*Lotus corniculatus*—birdsfoot trefoil.*Trifolium repens*—creeping trefoil.*Trifolium pratense*—meadow trefoil.*Agrostis alba*—creeping bentgrafs.*Festuca duriuscula*—hard fescue.*Poa trivialis*—common poe.*Poa annua*—dwarf poe.*Bromus mollis*—soft brome-grafs.*Avena flavescens*—yellow oatgrafs.*Holcus mollis*—couchy softgrafs.*Ranunculus repens*—creeping crowfoot.*Lathyrus pratensis*—meadow vetchling.*Vicia cracca*—bluetufted vetch.

Weeds.

Carex hirta—hairy sedge.*Cineraria palustris*—marsh fleabane.*Potentilla anserina*—silverweed.*Achillea*

* The soil a middle loam, on a moist retentive sub-soil. Grass and corn alternately. The grass esteemed favorable to cheese.

- Achillea millefolium*—common milfoil.
Prunella vulgaris—selfheal.
Potentilla repens—creeping cinquefoil.
Ranunculus acris—common crowfoot.
Carduus palustris—meadow thistle.
Serratula arvensis—common thistle.
Aira cæspitosa—haddock airgrafs.
Centaurea nigra—meadow knobweed.
Carices — — sedges.
Hypochaeris radicata—longrooted hawkweed.
Carduus lanceolatus—pear thistle.
Juncus effusus—common rush.
Juncus inflexus—wire rush.
Gentiana centaurium—centaury gentian.
Rumex crispus—curled dock *.

55.
BOTANY.

HERBAGE

* DOCK. In this list, the dock stands last; because the pieces examined had been previously gone over with the docking iron. But if much of the turf of the district were to be examined, in this way, the dock would be found at the head of the list. And no wonder, while an idea, disgraceful to the district, remains unexploded; and while there are men weak enough, or slovenly enough, to suffer it to influence their practice.

This ingenious idea, which I have actually heard defended (and have too frequently seen it introduced into practice), is, that the best way of getting rid of docks on grassland is "to let them spend themselves by seeding!"

55.

BOTANY.

HERBAGE OF RICH MIDDLELAND*.

*Grasses.**Cynosurus cristatus*—common dogstail.*Lolium perenne*—raygrafs.*Holcus lanatus*—meadow softgrafs.*Poa trivialis*—common poe.*Agrostis capillaris*—fine bentgrafs.*Festuca duriuscula*—hard fescue.*Plantago lanceolatus*—narrow plantain.*Trifolium repens*—creeping trefoil.———— *pratense*—meadow trefoil.*Lotus*

ing!" that is to say, to let them feed themselves to death!!!

The *argument* held out is, that there are no docks on "old turf"—old grassland. It is however admitted that, although the "birds of the air" fly away with the principal part of the seed, the part beaten down, and trodden into the soil by stock, will grow, when the land is plowed up.

How truly absurd, then, is such an idea, in this country, where land is laid down to grass with no other view than that of plowing it up again in a few years.

* Rich, sound, dry land: "Ammington-hall park-pieces:" in good preservation: free from anthills and rubbish: esteemed the best grazing ground in this country. Being all in pasture, and eaten very bare, at the time the specimens were gathered (17th July), the list may not be accurate: it is, however, sufficiently so to give a general idea of the herbage.

Lotus corniculatus †—birdsfoot trefoil.

Lathyrus pratensis—meadow vetchling.

Avena flavescens—yellow oatgrass.

Daëtylis glomerata—orchardgrass, or foggrass.

Ranunculus repens—creeping crowfoot.

55.
BOTANY.

Weeds.

Achillea millefolium—common milfoil.

Centaurea nigra—meadow knobweed.

Ranunculus acris—common crowfoot.

Carduus lanceolatus—spear thistle.

Serratula arvensis—common thistle.

Urtica dioica—common nettle.

HERBAGE

† *LOTUS CORNICULATUS*. This plant, notwithstanding the dryness of the season, flourishes in a singular manner, in the most exposed situations. On bowling greens and mown lawns, it is almost the only green herb-
age left (the daisy excepted), variegating their stone-
coloured surfaces, in some instances, beautifully.

In meadows and pasturegrounds, it is, this year; particularly abundant; or perhaps more accurately speaking, particularly conspicuous.

A very strong deep tap root is evidently the cause of its thus resisting drought.

Might not a productive variety of this plant be cultivated with profit, in dry burning situations?

55.

BOTANY.

HERBAGE OF NEGLECTED OLD GRASSLAND*.

Grasses.

Similar to those of the foregoing lists; varying with the quality of the soil, and subsoil.

Weeds.

Beside those last enumerated, the following are found in too great abundance.

Crataegus oxyacantha—hawthorn.

Prunus spinosa—sloethorn.

Rosa arvensis—field briar.

Rubus fruticosus—common bramble.

Ulex europæus—"gorse."

Anonis arvensis—"hen gorse," or "fin."

Genista tinctoria—"yellows."

Festuca sylvatica—wood fescue, or anthill grass.

Galium verum—"joint grass."

Senecio jacobæa—common ragwort.

Daucus carota—wild carrot.

Rumex crispus—curled dock.

Aira cæspitosa—haddock airgrass.

Plantago major—broad plantain.

Potentilla anserina—silverweed.

Potentilla reptans—creeping cinquefoil.

Polygonum aviculare—hogweed.

The

* Provincially, "OLD TURF;" of which there are several patches, still left, in the district; and some of them in such a rough neglected state, that half the surface lies in little better than a state of waste.

The unusual dryness of this summer is much against ascertaining, with precision, the herbage of a district; especially in PASTURE-GROUNDS; which are, this year, eaten to the quick: even the grossest weeds are left without seedstems: the *crowfoots*, *yarrow*, *knobweed*, &c. &c. are discoverable by their root leaves only!

This, by the way, is a striking evidence, that those weeds, though they may not be *palatable*, are not *pernicious* to cattle; which never looked more *healthy*, than they do this year; and the specific qualities of plants, of every kind, are, in their nature, this year peculiarly *strong*.

To ascertain the herbage of grasslands, with accuracy, the same ground should be gone over, twice: once, in the beginning of June, and again, in the latter end of July, or the beginning of August: if, however, circumstances will admit of only one observation, the middle of July seems to be the properest time, for pasture grounds, and the beginning of hay time, let it happen when it may, for mowing grounds.

For, at these times, the early grasses, tho' they may have shed their seeds, the stems

55.

BOTANY.

with their husks or chaf still remain : the *vernal* is, now, as conspicuous as it was, when in blow ; the *meadow foxtail* the same ; and tho' the autumnal grasses may not be yet in blow, their feedstems with their panicles are protruded (some few, perhaps, as the *panic grasses*, &c. excepted) ; and the more hurtful *weeds* are, at those times, sufficiently evident.

From the middle of June, to the middle of July, the *corn weeds*, also, are sufficiently apparent : so that, of all others, this seems to be the fittest season for BOTANICAL EXCURSIONS, *by a farmer* : for it is the *principal grasses*, and the *prevailing weeds*, he wants to know ; not the *scarce plants*, which, seldom occurring in the same piece, require the eye of the *botanist* to descry them. These are not objects of AGRICULTURAL BOTANY.

DAIRY.

From the foregoing lists it appears, that CHEESE of the first quality is made from cold land, foul with the rankest weeds. Cheese made from the second list has been, at six months old, "as red at the edge as a cherry."

The cold lands about Caldwell, Coton, &c. are likewise noted for cheese ; and, indeed, the entire line of country from hence to Burton, mostly

mostly a strong retentive soil, is esteemed "famous land for cheese:" while on the light sandy lands, west of the Tame, little or no cheese is made; except for "family use." And Norfolk, a light land country, is unfavourable to cheese.

55.
DAIRY.

Hence, if any inference, with respect to SOIL, can be drawn, from the observations I have hitherto been able to make, in this district, it is, that *strong, cool* lands are good; *dry, light* lands bad, for cheese. But see vol. i. p. 353.

And with respect to HERBAGE, it is evident, that *dogstail, softgrasses, vernal, raygrasses, and ribgrasses*, afford good cheese; for these five species constitute nine tenths of the grasses, both of "Seckington Breach" and "Statfold Ridding;" in both of which *sharegrasses* and *fleabane* are predominant weeds: indeed, at present, the former has nearly half its surface occupied by weeds: the furrows, particularly, are filled with *fleabane, silverweed, sharegrasses*, and other *sedges*.

56.

56.

HAYING.

JULY 24, Finished hayharvest, yesterday.

This has been an uncommon haytime, The little grass, which grew this summer, was all *substance*, containing but little *sap*; consequently, required a small portion of time and exposure, to fit it for the rick.

The great art, this year, has been in not making it too much; yet making it of a uniform dryness. This was not to be done, any other way, than by getting it together into a body; that the “bents”—the stalks or seed-stems—might absorb the little superfluous moisture, which the leaves afforded; and to carry it before it became *rustlingly* dry.

Being aware of this, I raked it into *rows*, immediately after the *sithe*; broke it, after the rakes, into *thick beds*; turned it; formed it into *small cocks* proportioned to its state of dryness: next day, broke it out again, into *thicker beds*; turned; carried.

The ricker was alarmed at the *green* state in which it was sent in. But he is convinced of his mistake; the rick having scarcely
heated

heated enough, to make it settle to his mind : yet it went into the rick, nearly as green as when it was cut.

It is, indeed, observable that hay, this year, did not “weather :” even *burnet* kept its colour, and a degree of toughness ; and the grasses in general, though quite dry, remained soft and limber : owing, most probably, to the richness or spissitude of the sap ; not to any extraordinary humidity in the air ; the hygrometers keeping between 4° and 8° dry*.

The QUANTITY OF HAY, this year, is perhaps less than ever was known. From what I have seen, and from what I have heard, one third to one half of a ton an acre has been, in this neighbourhood, the average produce of lands, which, in a hay year, cut from two to three tons an acre. Taking the district

I 4 throughout,

56.
HAYING.

PRODUCE
of
HAY.

* These particulars are published as a CAUTION to the makers of hay, in a DRY SEASON. I afterwards met with an instance in which the hay of that year was found defective in fattening quality : a circumstance which, I have not a doubt, was owing to its having been improperly harvested : to its being suffered to stand too long, before it was cut, and in exposing it too much, afterwards.

56.
PRODUCE
of
HAY.

throughout, both as to MEADOW HAY and CLOVER, there is not, I apprehend, more than *one fifth* of a common crop*.

57.

WATERING
DUNG.

JULY 26. (See MIN. 45. and 47.) On examining another yard of manure, which had been piled some time, and finding it, in parts, mouldy, and unfit to be set on the land, I had it re-turned and WATERED; burying the outsides and dry parts in the middle of the piles; drenching it well with water, (the drainage of the yard) as it was turned over; carefully breaking every lump, and mixing the done with the underdone parts; finally watering the surface, and clapping it smooth and close with the back of the shovel, to keep in the heat, and prevent the outsides from drying, as they did after the first turning up; therethrough remaining in a state of strawiness.

By the falling of the reservoir, I judge that the piles, about three feet high, have had
about

* These circumstances are mentioned to show the UNCERTAINTY OF SEASONS, in this country, and to prolong the remembrance of such a season, as may not happen again.

about two inches deep of water; calculating on a superficies equal to the bases of the piles.

The expence of turning and watering the fifty or sixty loads, fix shillings; not three halfpence a load*.

57.

WATERING
DUNG.

58.

JULY 27. It is well understood, in this country, that HORSES will, in a COMMON YEAR, thrive, at grafs, with little or no WATER.

HORSES.

But this year has afforded an instance, that, in a VERY DRY SEASON, at least, horses require some water.

Mr. MOOR of Appleby had some colts in a piece of grafs, without water in it. They fell away, though their pasture was good. On being let out, they galloped to a drinking pool, and drank immoderately: and, having since been allowed water, their health is returned,

JULY

* I insert this, and the foregoing memoranda on the same subject; because the operation, I apprehend, is new; and I am fully convinced that, on many occasions, THE WATERING OF DUNG may be practised, with singular propriety.

59.

59.

COUCHY
FESCUE.

JULY 28. Observing, at a distance, a patch of a piece of OATS, on a neighbouring farm, going off in a singular manner, I went to examine it; and found it to be a part, thinner than the rest, to which the ROOKS have taken, and broken the entire plot down to the ground.

Examining farther, I found that this badly cropped part is extremely foul with what is here called "BLACK TWITCH" (*festuca duriuscula*), while the rest of the piece is pretty free from it.

There is no perceptible peculiarity in the soil of this part; and the mischief is probably owing, entirely, to this noxious plant: which, notwithstanding the extreme dryness of the season, flourishes, this summer, with extraordinary vigour.

A tuft which I have in cultivation, among other grasses, and off which I cut the feed-stems, about a week ago, has already shot up a haddock four or five inches high! while the other grasses are most of them at a stand, for want of moisture.

This

This plant appears to set drought at defiance ; it will flourish even on the tops of walls ; and might, in much probability, be CULTIVATED in the most EXPOSED SITUATIONS, and on the DRIEST SOILS.

The herbage of this plant is not, I apprehend, of a good quality. But although it be neglected among better grasses, it might, perhaps, in situations where no other grass would flourish, be cultivated with singular advantage.

59.
COUCH
FESCUE.

60.

JULY 29. A striking specimen of what naturalists term ACCIDENTAL VARIETIES fell in my way this morning.

Mr. WILLIAM MOOR of Thorp showed me a fourshear wedder, of the horned, black-faced, shortwooled breed ; bred, as a "common" sheep, on Clifton heath ; yet of extraordinary form and fatness !

Excepting three wedders of Mr. Bakewell, this is, I think, the fattest sheep I ever touched. His "foreflank" is singularly full ; his "kernel," too, is great. He is "cracked on the back ;" and his rump is somewhat "cushioned !!" See vol. i. p. 384.

SHEEP,

JULY

61.

61.

TURNEPS.

JULY 31. It is observable, this year, that turneps sown after a certain time—the middle of June—have universally miscarried; either through the droughtiness of the season, the “fly,” or other cause.

**TURNEP
FLY.**

It was observed, by the most incurious, that the early sown turneps, whether in the garden or the field, escaped unhurt by the “fly;” and this, notwithstanding the dryness of the season, which has generally been considered as its great encourager. See MIN. 44.

In examining the young plants of No. 2, I found two or three of these little vermin upon many individual plants, and others upon the clods. With some difficulty I caught two of them; one of which I saved, sufficiently entire, to examine it under a glass.

**TURNEP
BEETLE.**

This little mischievous insect is not, I find, a fly; but a BEETLE; bearing the following description:

The whole length of the body and head, from one twelfth to one tenth of an inch.

Its width or breadth, about half its length,

The

The antennæ are of ten joints, and about two thirds of the length of the body.

The wing cases—concave, and joined by two straight edges : their colour a dark chocolate, with a stripe of yellow white along the middle ; occupying about one third of the surface ; which is dimpled, polished, and shell-like. Both sides the same. The texture, brittle as eggshell.

The wings are folded back under the cases, being nearly twice their length ;—membranaceous, with two or three strong nerves, running about half their length. Colour, a light drab or stone colour : the nerves brown.

Legs—six—black : the two hind ones, clubbed upward.

Head and breast—black and polished.

Abdomen—the same, with four articulations.

In catching these beetles, I found I had bruised, on the underside of the leaves I caught them upon, a number of soft insects.

This led me to take up a plant carefully ; and, on examining the undersides of the leaves (the first or leadling leaves) I found them paved over with minute bugs of different

61.

TURNER
BEETLE.

TURNER
BUG.

61.

TURNIP
AUG.

ferent colours—yellow, green, black; with two or three small longwinged flies among them; all of them perfectly tame; and, apparently, at feed.

This accounted for the mysteriously slow progress the seedling plants had made; some of them having been in feed leaf a week or ten days; yet made no visible effort to get into rough leaf; and this, notwithstanding they remained upon the ground, and looked tolerably healthy; having no other marks of disease (to the eye looking down upon them), than some punctures or pits on their surfaces.

On more minute examination, under a glass, I find that the bugs and the flies are individuals of the same insect, in different states.

Under one pair of seedling leaves, I counted more than fifty of these vermin: not eating, but sucking their juices, or sap, through long probosces; by which they hung to the leaf as leeches.

The flies bear this description:

The body and head—black, short, nearly eggshaped; about one twentieth of an inch long:

long: not larger than a grain of turnep feed.

61.

TURNIP
BUG.

Wings—four: two very long; standing high above the tail; more than twice the length of the body: two very short; not so long as the body: both pairs transparent, and strengthened by a few opaque straight nerves. The *shade*; coppery—elegant!

Antennæ—long, slender, tapering: the joints indistinct: the length three fourths that of the body. Colour black.

Legs—six, of a lighter colour than the body.

Proboscis—large, long, cylindrical, jointed, ending in a point, which the insect, in either state, inserts in the leaf, and which, when it couches at feed, appears to issue from the abdomen; but, on being raised upon the legs, it evidently passes to the snout: in walking, it is carried under the belly; lying close to the thorax; reaching about half the length of the body.

Abdomen—nearly globular: flattened at the apex; with a little black club, standing out on either side: which appendages and the proboscis are the same in the fly and the bug.

The

61.

TURNEP
BUG.

The propagation of this insect I have not yet been able to discover. From what I have already observed, it appears to be viviparous. The pits on the leaves are evidently eaten by the beetles: there is not the smallest remains of a nidus in any plant I have yet found them upon. They are plentiful upon a neighbour's plants, which are but just opened into leaf; and which have not yet a speck upon them.

The blades of selfsown oats among the turneps in No. 2. are covered with them: not less than a hundred on a blade! they are also in great abundance upon the *chenopodium viride* (fat-hen*) and some I have found upon the bean. But upon these two plants, they appear to be larger and blacker: the very BLACK BUG—NEGRO—here provincially "SMOTHER FLY"—with which beans are frequently infested.

These four are the only plants upon which I have yet observed them †; but upon
none

* AUGUST 6. This plant flagged; and even bowed down under their weight.

† I afterwards observed them upon a species of the dandelion or the hawkweed tribe; but do not recollect the

none of which there appears the smallest vestige of a nidus. Yet upon each of these plants they may be seen of every size; some of them apparently minute enough to be brought forth alive. The smallest are of a cream colour—the next green—the next redish green—the largest black.

Examining a piece of early sown turneps, I found a number of the yellow TENTHREDO FLIES*; as well as BEETLES; though the leaves were large; the plants half grown.

The BEETLES were remarkably tame: many of them in pairs; copulating, as the house flies; leaping from leaf to leaf in pairs.

Their tameness, especially after I had remained a few moments in a kneeling posture among the plants, gave me an opportunity of observing their manner of leaping; which is evidently effected by a spring with the hind legs (as that of the flea) without elevating their wings to assist them.

AUGUST

the particular species. Here, they were of a light chocolate colour: somewhat the colour of the plant they were upon.

* See NORF. ECON.

VOL. II.

K

61.

TURNEP
BUG.

TURNEP
TEN-
THREDO.

TURNEP
BEETLE.

62.

62.

AFTER-
GRASS.

AUGUST 2. Through the bareness of the pasture grounds, this summer, it has been the universal practice to put stock into mowing grounds, as soon as the hay was out of them.

In order to catch the little grass, the mowers left, before it should be burnt up, I followed the practice; putting in the cows, and some Scotch bullocks.

Of the cows I heard no complaints; but the bullocks, very obviously, received a check; notwithstanding the lattermath was, to appearance, an infinitely better pasture, than that they were taken from.

Mr. —, on my mentioning this circumstance, said that he had experienced a similar effect, on his cows, which evidently fell off their milk, on being turned into his watered meadows.

This he considers the more extraordinary, as his meadows, having been kept moistened, were of course "foster" than those which have not been watered. For it seems to be a
general

general idea, here, that the evil is effected by the "stubs," of the grasses and weeds mown off, "stubbing" the noses of the cattle; and thereby preventing their feeding freely, on the softer parts of the herbage.

Mr. — was very anxious, the other day, to make his men mow his meadows level and close, in order to get as much hay, and to leave as little bottom, as possible:—"for," says he, "it does beace but little good; there's so many plaguy stubs in it, they wont eat it."

This idea has arisen, most probably, from the graziers having observed their feeders, and the dairymen their cows, shrink on being put upon such pasturage; and there may be some truth in the stubs being offensive to cattle. I am rather of opinion, however, that the principal cause of their not thriving is owing to the INHERENT QUALITY of the GRASS,—rather than to the STATE in which the fithe leaves it.

I recollect observing, on the cattle being turned in, how voraciously they fell to, enjoying, for the first time this summer, a mouthful of grass; unmindful of the "stubs."

62.
AFTER-
GRASS.

If we examine the remaining herbage of ground recently mown, we find it consist, either of the STUBS and ROOTLEAVES of plants which have run up to seed, or of weak UNDERLING PLANTS which have not been able to cope with their more powerful neighbours, or of LATE FLOWERING PLANTS.

The quality of the *first* is, of course, injured by age, and by the strength of the root having been spent on the upper leaves, fructifications, and seeds. That of the *second* cannot be good: they are in a similar predicament to grass growing under a hedge, or in a wood, checked in their growth, and shaded from the sun. And the *last* partakes, in some degree, of the same disadvantages; though, of the three classes, they probably contain the most nourishment.

Some of the bullocks, I observed, began to scour, and to look what is called "washy:" the grass they had been taken from, though short, had received the full influence of the atmosphere, and the whole strength of the roots, and was, in consequence, this dry year, full of nourishment: while that which they were put into, though
it

it was sufficiently plentiful to fill their stomachs, was deficient in the essential quality.

62.

AFTER-
GRASS.

Upon the whole, it appears to be ineligible management, to put stock into recently mown grounds; unless on particular occasions; as in a year, like this, when cattle are starving in their summer pastures: for, it is probable, the browsing and the trampling check, considerably, the after shoots; the peculiarly nutritive quality of which is well known, in every country.

63.

AUGUST 3. Mr. — showed me a pretty large patch of beautifully clean POTATOES, the JOINT PROPERTY of HIMSELF and his WORKMEN: *he* finding land, manure, and “setts;” *they* labour, from first to last; digging, planting, cleaning, and taking up: the produce to be equally divided.

POTATOES.

His motive for adopting this mode of cultivation was, that he, having a variety of avocations, used to neglect his potatoes, and let them get foul: now, his men, not only

K 3

take

63.
POTATOES.

take the labour off his hands, but the care off his head : his interest and their's are the same,

64.

SPREADING
MOULD.

AUGUST 3. I am now spreading the banklets of mould, left by the sides of the trenches, cut in meadow No. 6. See MIN. 32.

The lattermath having been previously eaten off, the men throw the mould, tempered by last winter's frosts, and this summer's sun, as far as they can with freedom : about a rod wide on each side the trench : except where low hollow places occur, and there the mould is thrown into them ; to level them up, and prevent, hereafter, water from lodging. See as above.

GRASSLAND.

On the bottoms of the banks, sow raygrass and white clover ; raking in the seed with a garden rake ; first smoothing the ground ; giving it a gentle dip toward the trench ; and paring off the angle or brink, to prevent its being trod into the trench.

What

What I gave tenpence an acre for making, I give fourpence or fivepence, for spreading, fowing, and raking.

The waste of mould is striking: it would not, now, much more than half fill the trench. We have had no heavy rains to wash it away: and the wasting cannot be accounted for, perhaps, in any other way, than by the rotting of the roots of the grafs.

64.

GRASSLAND.

SWARD.

65.

AUGUST 3. This farm is remarked as being productive of MELDEWED OR BLIGHTED WHEAT: namely, wheat with shrivelled grains, and generally with black straw: more particularly No. 2 and 3; the best land on the estate.

BLIGHT
of
WHEAT,

Old Barwell, who has known the farm fifty or sixty years, says he has observed that the blight comes on, at once, about the latter end of July; and that wheat which is forward enough to be filled, by that time, escapes it: adding that the malady was not known, at least not common, in this district, until about twenty years ago.

K 4

Has

65.

BLIGHTED
WHEAT.

Has it not been caused, or encouraged, by a succession of wet seasons? It is well known that the disease is most injurious in a wet season; and hence, principally, the scarcity and advanced price of wheat, after such seasons. See MIN. 74.

66.

DRINKING
POOLS.

AUGUST 3. I have embraced this dry year, to scour out every drinking pool upon the farm; one or two excepted.

The OLD DRINKING PIT of this country is, like that of most others, a deep hole with high banks on every side; saving a narrow inlet or two, for the cattle to creep in and out at. These inlets are soon poached up, the water at them muddied, and underling cattle drink at them in fear; lest a master should come unawares, and force them into the pit.

The method I have pursued has been pretty uniform, throughout. I have had the whole done BY HAND, and mostly *by the grofs*; and have endeavoured to leave the pits (where the original form would admit of it) in the *bell* or *fireshovel* form: namely, with a wide
open

open free mouth, for the cattle to drink at, and with a long deep recess, for the main reserve of water to lodge in : the best form, perhaps, especially on a gentle descent, which can be given to an oldfashioned drinking pool. See YORK. ECON. on this subject.

Emptying mud holes, with HORSES and CARTS, is one of the most unpleasant businesses belonging to a farm : horses lamed, carts broken, men out of humour, and the bottom of the pit, of course, torn to pieces. On the contrary, emptying them with BARROWS and by MEN who understand the business, becomes a common occurrence, and, upon the whole, a great saving ; I mean, if the full extent of team labour, wear and tear, were to be calculated.

The methods which I adopted, and which only, perhaps, can be pursued with propriety, are these :

If the mouth be clear, and the pit sufficiently free from water, the workmen begin upon the softest mud, in the lowest part of the pit ; laying planks, in the form of the letter Y, to wheel upon ; with a cross plank, for the feet of the barrows to rest on.

But,

66.

DRINKING
POOLS.

66.
DRINKING
FOOLS.

But, where more water remains in the pit, than is useful to wet the spades and make the mud work well, they begin, in a similar way, immediately above the water, and make a hole large enough to receive it. This done, they let in the water, lay planks across the hole, and proceed, as before, to empty the farthest side of the pit; taking care to leave a wall of mud strong enough to support the cross plank, and to prevent the water from escaping, before the lowest part of the pit be emptied to receive it.

Where the mouth lay too high and full, so as to contract the pit, and make the drinking place too steep, I lowered it: not, however, by wheeling away the earth; but by turning it up into a pile, in the manner of compost; beginning at the outer margin, and working the earth away from the pit, as much as conveniency would allow. Also, where the mouth was blocked up, with hillocks of earth (the former scourings of the pool), I proceeded in the same manner; giving, at once, the required form; but leaving a pile of mould standing upon the margin of the pit; either to be re-turned and mixed with the mud when stiffened; or to be carted
away

away for a bottom to the farm yard or a dung heap.

The prices varied with the circumstances attending each pit. The whole expence, some three or four guineas; for which two or three hundred loads of manure have been raised; beside the advantage of commodious drinking pools, for many years to come, in almost every field of the farm.

66.

DRINKING
POOLS.

67.

AUGUST 10. What a precarious employment, for a man to place his dependence on, is FARMING !

HUSBANDRY.

The merchant may guard against winds and weather, and even the sailor may *ensure* every thing but his life; while the farmer is left at the will of the elements, without any surety.

Four months ago, grazing stock was invaluable; and graziers pockets full of money: all eager after lean stock, left their grass should be left unlevel.

But, *for want of a few showers in the spring*, the reverse is, at present, the case: even fat
stock

67.

HUSBANDRY.

stock is low; owing to a number of half fat ones being obliged to be sent to market.

Mr. ———, one of the largest occupiers in the district, says he shall this year sink his rent (from five to six hundred pounds!): this, however, may be the language of despair or of policy: nevertheless, his loss, as the greatest *grazier* in the country, must be very considerable. It is probable that his feeders, if they pay him any thing, will not pay parish rates and contingent expences: so far as grazing goes, he will probably sink his rent; and this must be the case of *graziers* in general. *Dairyfarmers*, of the two, will be the best off: they have made sure of something; and their cows are healthy, and going on in their usual track.

Farmers, in general, must this year feel severely, the great FALL IN THE PRICE OF STOCK; a fall which may continue for some years; and is an immediate loss of capital, which every one must feel.

The disappointment has been nearly as great in respect to CROPS*. What pains I took

* And the injury done to the crops, by the drought of autumn, spring, and early summer, was heightened by

took last year to clean, and bring into proper tilth, the fallow of No. 9.—and to manure and nurse the turneps of No. 1. But what a return ! The barley of the former is materially injured by coming up at twice, and that of the latter still worse. A month ago, I despaired of its coming into ear ; or even of its reaching the fithe, to be mown as a crop of hay ;—*for the want of a few showers in the spring.*

This year, poor farmers, who had not money to buy stock, and slovens, who did not stir the moisture out of their lands, are in the best situation. This, however, is no argument in favour of poverty or slovenliness. For a sloven, to once right, is ten times wrong. A uniform perseverance, in that which he believes to be right, is much surer ground for a farmer to tread *.

AUGUST

by the extreme wetness of harvest ! Well might the oldest, and, in his day, one of the largest, occupiers in the district exclaim, in the latter harvest, “ the last has been altogether the most awkward year for farmers I ever knew ; the wheats came up badly ; the barleys still worse ; hay there is none ; and the little corn there was, has been spoilt by the weather : and, as to grazing, I never in my life knew any thing like this year ! ”

* These facts and reflections are not published with a view to discourage men from the occupation of lands,
but

67.

HUSBANDRY.

68.

68.

WATERING
RIDGES.

AUGUST 14. The other day, I let off the water of the farmyard reservoir (see MIN. 25.), conveying it over a land of the grass ground which lies below it, by a channel, or float, upon its ridge, agreeably to the practice of this country; stopping at every five or six yards; the descent being somewhat considerable. See vol. i. p. 281.

This method of throwing water over land, lying in ridge and furrow, answers tolerably well; but it is partial, and is otherwise imperfect.

to place the business of husbandry in its true light. Such a year, as this under notice, seldom happens. A young man might begin farming, and live to a good old age, without experiencing such a year. Nevertheless, he ought, before he begin, to know the truth,—that such a year may happen.

The practice of throwing out flattering ideas, to draw men over to the profession of agriculture, is fraudulent; and, like other fraud, is founded in bad policy. Men allured, by false representations, become disgusted by disappointment; and the profession, instead of gaining, loses by the device.

AN ART which, in a state of society, is essentially necessary to human existence, and on which, as a PROFESSION, the immediate happiness of millions depends, can be founded, permanently, on facts alone.

perfect. The parts nearest the stops get the most water; and it is impossible to prevent some share of the water from running waste into the furrows.

In attending the operation, I observed that a foot path, which crosses this land obliquely, caught the water, and, conducting it *back*, threw it regularly over the part below.

The thought occurred, that, by reflexing branch floats, upon a level, between the ridges and the furrows, the sides of the lands might be watered regularly; and this was followed by another, that, by a trench in each furrow, to collect the waste water, and conduct it into the branch floats below, no water would be lost.

This was succeeded by a third, which is evidently preferable to either, and saves the unsightliness and encumbrance of floats and stops upon the ridges, as well as some trouble in getting the head float *high* enough to throw the water upon the tops of the lands: namely, that of conducting it down the FURROWS; making these at once the FLOATS and DRAINS; spreading it over the lands, by means of small channels, cut *level*, and of course in the form of bows or festoons, between

68.

WATERING
RIDGES.

68.

WATERING
RIDGES.

tween furrow and furrow, at distances proportioned to the descent, and with curvatures adapted to the convexity, of the ridge to be watered.

To give the tops or ridges of the lands their due proportion of water, it becomes requisite to conduct it a little way along the ridge (or highest part, if the lands hang on the side of a slope) below each festoon, by the *point* of a trench, the same depth and width as the festoon channel at the top, contracting or tapering it to a point, before it reach the next channel*.

The stops in the furrows, at the end of each festoon, require, as those on the ridges in the common practice, to be partial; allowing each festoon a sufficiency of water to cover the space below it; letting the remainder pass down to the lower festoons; that the upper and the lower ends of the lands may have an equal distribution of water.

AUGUST

* These channels, being numerous, are tedious to be cut with a SPADE; but, in watering ridges on a large scale, a BREAST FLOW might easily be adapted to the purpose.

69.

69.

AUGUST 15. (See MIN. 64.) To break the clods, and let the grafs through the mould, fet women to work, with fpreading rakes. But this I find is tedious, expensive, and ineffectual; fome of the clods being too hard for this tool.

SPREADING
MOULD.

In future, endeavour to take the clods between wet and dry: run over them a roller with a pair of light harrows faftened behind them: complete the pulverization, and level the furface, with the SPREADING SLEDGE*; finally, rake off the undigefed roots, &c. and carry them to the farmyard to complete their digefion.

All poffible difpatch fhould be ufed, at this time of the year, to work mould or other manure, down to the roots of the grafs; relieving the blades from encumbrance; and leaving them free for paftring flock. The latter and winter feed are, by this management, improved, rather than injured, by a SUMMER DRESSING.

* See YORK. ECON. ART. MOULDING SLEDGE.

70.

70.

STAGGERS
in
HORSES.

AUGUST 15. The STAGGERS has of late been a prevalent disorder, among the farm horses of this district. Few large farmers have escaped. Mr. —, in his little way, has lost four: worth, probably, upwards of a hundred pounds. What a drawback on the profits of a small farm! As much, perhaps, as the rent he pays; and more, probably, than a year's profit. What folly in a farmer to lavish his capital on such costly and hazardous stock.

71.

ROADS.

AUGUST 17. Much conveniency may sometimes be had at a small cost.

The sandy road through No. 7. having been cut by heavy timber carriages, into deep ruts, I employed a man, with a garden rake and a hoe, to fill them up; by pulling the narrow ridges, raised on either side, into them. The seventy rods took him three or four hours.

Having a roller and a pair of harrows at work, in the next piece, I had them drawn along the road; first hung together, twice in.

in a place ; and then, with the harrows upon the roller, once in a place ; leaving the road as smooth and as round as a well kept gravel walk.

The team labour took two horses and a boy about an hour and a half. The whole expence about a shilling !

71.

ROADS.

72.

AUGUST 21. There is an idea prevalent, here, that " GEESE are healthful things among cows ;" and farmers in general, I believe, make a point of having a flock in their cow pastures : not, however, by way of sweetening the grass ; but of PURIFYING the WATER.

GEESE
in
COW-
GROUNDS.

The idea seems to be founded in nature ; and the practice may have been raised on experience : the violent agitation which geese, and other water fowls, sometimes communicate to water, may be said to be nature's process of purifying stagnant pools.

L 2

AUGUST

73.

COUCHY
SOFT-
GRASS.

AUGUST 24. *Holcus mollis*; or couchy softgrass. The oat stubble of No. 18. (succeeding a wheat stubble, to bring it into course) is overrun with this vile weed; the leaves "spireing" up, as high as the wheat stubble, and the soil full of its couchy roots.

In arable land, at least, this species of *holcus* is a great pest; and it is this species, probably, which has brought its sister, *lanatus*, into undeserved disrepute.

NATURAL
GRASSES.

From what I have observed in this country, the *HOLCUS lanatus*; the COMMON SOFT-GRASS; the *white hayseeds* of Yorkshire; ranks high as a *pasture* plant,—for *cattle*, at least. No. 7. abounds with it: perhaps half the blade grass of the piece is of this species: nevertheless, this piece is esteemed excellent for *cheese*; and from my own experience, last year and this, I am convinced that it is favourable to the *growing* of young heifers, and the *fatting* of Scotch bullocks. *Cattle* of every kind do well in it: but *horses*, I have

I have observed, do not thrive well in this piece*.

73.
NATURAL
GRASSES.

74.

AUGUST 25. (See MIN. 65.) a strong BLIGHT took place, the beginning of this month.

BLIGHT
of
WHEAT.

The straw of backward crops, whether of wheat or oats, is much discoloured. Mr. ——— has a piece of backward wheat very much “cankered.” The headland of No. 3. backwarder than the rest of the piece, is touched. Mr. ——— says, the north side of the lands in Newton Field are a good deal maldewed, while the south sides are free from the disease †.

L 3

It

* I do not mean to recommend the cultivation of this grass, in situations in general; but to endeavour to give it its proper rank, among pasture grasses. Nevertheless, there may be some situations, in which it may be cultivated, with propriety.

† This is an interesting circumstance; as affording a strong evidence, that the effect is governed by the state of ripeness; and that a few days of forwardness may be sufficient to prevent the effect. For the south
sides

74.
BLIGHT
of
WHEAT,

It is evident from this, and every year's observation, that the **FORWARDEST** wheats are least liable to be blighted: for that having passed some certain stage of maturation, they become invulnerable to the attack of this mischievous enemy: at least, no obvious injury is incurred.

It is also observable, that, this year, no perceptible blight took place, while the **DRY WEATHER** continued: but no sooner was showery weather ushered in, than a blight became obvious.

The only guard the farmer has against the attack of this secret enemy appears to be, at present, that of **SOWING EARLY**. But query, may not something lie within the power of **MANURE** or of **TILLAGE**? *Perhaps*, **SODBURNING** might be serviceable as a preventive.

AUGUST

sides of ridges, though always forwarder, are seldom ripe more than a few days before the north side.

It may, however, be said, that the circumstance is only an evidence of the cause of the blight being brought from the north; or that an undue degree of dampness is more liable to hang on the north, than on the south sides of ridges. And the only inducement I have for publishing this Minute is that of bringing forward a subject, which requires to be discussed.

75.

-75.

AUGUST 25. How convenient to reap corn by the threave. (See vol. i. p. 216.)

HARVEST-
ING.

I had, this harvest, fifteen or sixteen reapers, in nine or ten sets, in a small piece of seven acres. When they came near the finish, they cut off each other's "entails"—or ends of the lands: the whole finishing together; yet incurring no difficulty in settling their several earnings; though they worked by the gross: each set taking care of their own sheaves, and setting them up in their own row of shucks,

76.

AUGUST 28. The late showery weather has matured the seeds of the large spear thistle, and yesterday's dry air and warm sun have burst the heads, which now appear as large as the fist,—white and ragged—the seeds beginning to take wing.

WEEDS.

What a sight! Had the day been windy, it might have been dangerous to ride through

L 4

the

76.
WEEDS.

the country; lest suffocation in thistle down should have been the consequence. The by lanes are beset with these sturdy weeds, and the feeding pieces, or pasture grounds, in general, abound with them: but most especially those of ———, where there are beds of “boar thistles,” several acres in extent, strong enough for fox covers!

Taking the pasture grounds, throughout this noble farm, nearly half their surfaces are covered, and more than half the soil occupied, by weeds!

What pity some law cannot be instituted against so flagrant a nuisance. I have been scrupulously careful that not a thistle (were it practicable) should seed upon *this* farm, both last summer and this. But what avail the solicitude, and the expence, while such a pest is in its neighbourhood? Calm as the weather has been, I have seen full-bodied seeds carried a considerable way over it. Should a strong ——— wind get up, more than half the farm must of necessity be seeded! The other part of this estate is in the same predicament. Were the whole in my occupation, I would not, for twenty pounds, so great an evil should befall it.

Surely,

Surely, if an action of damages would not lie in a case of this nature, an indictment in the court leet might be preferred for a nuisance.

As to the farm itself, it must receive an injury, this year, which will require a century to do away. There are not only beds of thistles, but patches of docks, three or four feet high, for acres together ! This dry summer has cleft the surface of the earth, to a great depth ; and each cleft, in spots like these, must, in the nature of things, have swallowed down a potion, which will poison it for ages to come,

How much it behoves the managers of estates to look to the condition of farms, at this season of the year ; to encourage cleanliness, and good husbandry ; and to treat, with due severity, a slovenly tenant. ○

Every lease, or other written agreement, for the occupation of lands, might well have a clause, laying penalties on SLOVENLINESS : to be ascertained as DILAPIDATIONS and WASTE,

76.
WEEDS.

MANAG-
MENT
of
ESTATES.

AUGUST

77.

WEEDING
STUBBLES.

AUGUST 30. In the wheat stubble of No. 3. some docks, overlooked by the weeders, were left standing by the reapers.

A boy, employed to frighten rooks from the shucks, took a trimming hook and a wheelbarrow into the field with him; and while he scared the birds, cut off (carefully so as not to shed the seed) and collected the docks.

Clearing the seven acres did not amount to more than a boy's day's work. Indeed, in this case, the *cost* was nothing: the *thought*, alone, produced the effect.

Early in the morning, while the dew is on, or showery damp weather, is the fittest opportunity, for the operation.

78.

MINUTIAL
MANAGE-
MENT.

AUGUST 30. The weather being unsettled, and unfit for mowing barley, I set the workmen, yesterday afternoon, to draw over some old thatch; the longest for thatching ricks, the

the next for stopping roofs, the refuse for the dunghill.

This morning they are trimming hedges, mowing weeds, opening watercourses, setting up posts and rails in piles, to prevent their rotting on the ground, and to free the grass among which they lie scattered, &c. &c. &c.

The difference between a husbandly NEATNESS and a wasteful SLOVENLINESS, wide as it is, lies chiefly in being attentive to MINUTIÆ; and in making the most of a BROKEN DAY; which, especially at this season of the year, is too frequently spent in idleness, when it might be employed in useful purposes. (This by way of hint,)

78.

MINUTIAL
MANAGEMENT.

79.

AUGUST 30. It is generally bad management to HOE TURNEPS in MOIST WEATHER; unless when the plants are taking harm, by crowding each other.

HOING
TURNEPS.

The plants of No. 5. stand much in CLUMPS. I have therefore given the hoers (who have taken them by the acre) in choice, whether they

79.

HOING
TURNEPS.

they would leave off entirely, or “thin the clusters;” and go over the whole, again, when the surface becomes dry. This, though more trouble, than going over them only once, they have chosen in preference to lying idle; and the plants, now ready to run up, will receive considerable benefit from this timely operation.

80.

GLEANING.

SEPTEMBER 5. Last harvest and this, I have adhered to my accustomed rule of suffering no GLEANING, until the shucks be carried: which is, I find, an established practice, with many farmers of this district.

This harvest, however, has shook the principle on which I have grounded my conduct.

I have heretofore considered the admission of children among sheaves, and unbound corn, as introducing them into the school of theft. Their parents expect some certain quantity of corn to be carried home. If this quantity fall short, correction is a probable consequence. To obtain this quantity, fairly, requires an exertion and a degree of labour, which they find irksome; but collecting it
from

from the sheaves, or the unbound corn, they find an easy task : and having thus early in life, established the fact upon experience, that it is easier to steal their bread, than to work for it, it is to be feared, that some of them, at least, retain the principle.

But my experience, this year, has taught me, that forbidding gleanings, until the sheaves be out of the field, is not only productive of another species of theft ; but incurs a waste of corn.

No. 3. was very much ravelled ; and, out of fifteen or sixteen reapers, eight or ten were bad ones : there was, of course, "good gleaning." This induced gleaners to get to it in the morning, as soon as it was light, before working hours, or to watch their opportunity, in the middle of the day ; the piece lying at a distance : so that, in this case, shutting out gleaners, at the time of reaping, served only as a temptation to draw them into the field, when no one was there, to give an eye to their actions ; and, of course, proved an encouragement, rather than a check, to dishonesty.

In this way, a part of the scattered corn was carried off ; and that which was left after the corn was carried, was scarcely worth picking up.

80.

GLEANING.

80.

CLEANING.

up.—The rooks, partridges, small birds, mice, &c. &c. had, in a manner, wholly destroyed it: and this must always be the case; though it never struck me so obviously, as it has done this year.

What line can be drawn in this case? What rule of conduct be laid down? The ears of wheat which are scattered unavoidably, in greater or less quantity, in reaping the crop, have been considered, time immemorial, as the perquisite of the poor. To debar them from collecting such scattered corn, and to give it to vermin, cannot be right. It is not only a present relief to them; but the act of gathering it is, or might I should think be rendered, a school of industry, and, perhaps, of honesty.

Thus, permit the gleaners to follow the reapers; keeping a watchful eye over them; and treating, without lenity, every attempt at pilfering.

This, upon children, at least, might have a good effect; by teaching them, at an age when lessons make deep impressions, that dishonesty and disgrace are inseparable.

One rule, I am certain, ought to be rigidly attended to. No person should be permitted

to

to GLEAN, who is able to REAP. GLEANING ought, most undoubtedly, to be considered as an exclusive privilege of CHILDREN, CRIPPLES, and SUPERANNUATED REAPERS.

What a loss the neglect of this regulation is to this country ! Perhaps several hundred pounds are annually carried out of it, by the “peakrils” and “lowcountry men :” whereas, if every woman, who is indigent and able to work, were, in this country, as in Yorkshire, to carry a sickle, instead of a “pyking poke,” into the field, every sixpence of it might be saved.

In Yorkshire, all the wheat, generally speaking, is reaped by WOMEN. A young healthy woman, there, would be ashamed to be seen gleaning ; and the actual disgrace is equal, in any other country. There are few places, I apprehend, where there are not children and old people enow, to do the honest part of gleaning.

Another rule, which is unobserved in this country, and every other I have been in, except Norfolk, is that of each parish or hamlet securing the whole of its gleaning to its own poor. This is not only doing justice, to itself
and

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GLEANING.

GEN. OBS.
on
HARVESTING.

80.

GEN. OBS.

on

HARVESTING,

and its poor, but saving the farmers from those clouds of gleaners, which otherwise is liable to pour in upon them.

By thus securing the gleanings to the CHILDREN and immediate PAUPERS, and paying the wages of REAPING to their OWN PARISHIONERS,—their labourers wives and daughters,—the occupiers, it is highly probable, would in the end feel the benefit of such a regulation, in their poor's rates: and the poor, at the same time, be rendered, by habits of industry, more valuable members of society.

81.

HARVESTING
WHEAT.

SEPTEMBER 6. This harvest, the weather being hazardous, I had the wheat HOODED, as the shucks were set up. See MIN. 10.

A vile method of putting on the "caps" prevails in this country. The cap is prepared or formed, by setting the sheaf on its butt upon the ground, and *breaking* down the straw at the band place; *seating* them upon the shuck, with their *bodies* bolt upright, like Darby and Joan on horseback. The consequence is, the rain which falls in their laps, runs

runs through their coats, into the middle of the shuck.

By endeavouring to seat them upright, and to secure as well as they can, by this method, the middle of the shuck, the corner sheaves are frequently left exposed; and, if any rain be shot off by the caps, it is, of course, poured into the middle of these sheaves.

To prevent these consequences, I had, after the reapers had finished, every shuck attended to, and the corner sheaves secured, as well as the mangled condition, and *posture*, of the covering sheaves would permit.

The best method of securing sheaf corn, from the weather in the field, appears to be this :

The NUMBER OF SHEAVES should be in proportion to their size, and the length of the straw. Ten is, in general, the best number for a *covered* shuck. Twelve, unless the sheaves be small and the straw long, can seldom be sufficiently secured from the weather; and eight require an unnecessary number of hoods, and incur an additional trouble in covering*.

IN

* In reaping by the threave, twelve or eight would be more convenient than ten. But why not reap by the score?

81.
HARVESTING
WHEAT.

IN SETTING UP the sheaves of the body of the shuck, set up each sheaf singly; pitching it smartly down upon its bottom; so as to mould the straw at the but, to the clods, or other roughnesses of the soil, on which it happens to be set;—placing each pair of sheaves, sloping enough, to secure firmness to the shuck, and sufficiently upright, to prevent the drip of the hoodsheaves from being caught by the bandplaces; and pitching the pairs, at a sufficient distance from each other, to admit a free circulation of air between them.

Having previously laid aside two of the largest, longest, fairest sheaves for caps, and having squeezed the ears of the standard sheaves close together, with the arms and the bosom, OPEN THE HOODSHEAVES, by laying them separately across the knee, and, having divided the ears sufficiently deep with the fingers, make good the cleft, by forcing the fist, or the elbow, close up to the band-place.

IN PUTTING ON THE HOODSHEAVES, lay fast hold of the *selvages* of the *cloak*, with one hand on either side, near the bandplace; standing with the face toward the shuck, dropping the hands below the straggling
cars

ears of the standard sheaves; sliding up the hoodsheaf as hard, close, and tightly, as possible, against the end sheaves, so as to give a *spring*, which, if properly effected, assists very much in preventing the hoodsheaves from being disturbed by the wind.

Lastly, having opened and spread abroad, in the manner of a lady's fan, the *inner* sides of the BUTS OF THE HOODSHEAVES, beat them closely together, so as to mingle and unite the straws of the two sheaves with each other: the last, a valuable part of the operation, which not only gives additional firmness, and a regular roof, but affords, in the spreading butts, an umbrella to the middle of the shuck.

82.

SEPTEMBER 9. This year, I grew ten or twelve acres of OATS, on a foul wheat stubble, once plowed, by way of bringing it into course, for fallow next year.

About two acres (a cool moist part of the piece) were sown the 7th April; the whole being plowed in March. But the remainder

M 2

of

81.

HARVESTING
WHEAT.

OATS.

82.

O A T S.

of the piece I suffered to lie unfown, for two reasons: the dryness of the soil, and the backwardness of the season: the fallow did not blow, before the 16th April; nor did the grosberry foliate, before that time.

SEASON

of

SOWING.

Nevertheless, I finished sowing the 18th April: not more to save appearances, than to endeavour to hit the middle way between the SEASON and the SUN; for, although I am clearly of opinion, that the latter ought not to be wholly attended to; yet, it is more than probable, that it should not be wholly disregarded: because, when the season is backward, it is generally rapid; and although oats, for instance, may be *sown* with the fallow; yet, before they have had time to prepare for a state of *vegetation*, and to struggle through the soil, the hawthorn may (as it did this year) have foliated: and it is, probably, the *emergence* of the plant, not the *deposit of the seed*, which ought to keep pace with the VEGETATION OF TREES.

All the oats in the country (Mr. ——'s perhaps only excepted) were sown before the SALLOW BLOWED: in general, between the 1st and the 15th April.

Those

Those which were sown early, and immediately after the plow, before the frost had taken the surface, came away, at once, and looked beautifully : while those of No. 17, sown by the *SALLOW*, came up in patches, and made a very poor appearance.

The plants, however, which rose, were strong, and of a good colour, with the ribbon broad ; and, when the panicles “ pushed out of the hose,” they proved to be unusually well “ corned :” so that, before harvest, they put on the appearance, notwithstanding the season and the state of the soil, of a tolerably full crop : while those, which had been sown early, and looked so beautifully in the spring, dwindled away daily ; becoming weak, short, thin and “ scrawly ;” and, when they were mown, afforded no swath. Neither Mr. — nor Mr. —, I apprehend, had a load an acre ; notwithstanding the soil was evenly occupied : while in No. 17, where not half the seed vegetated at the time of sowing, and where, in many places, not half the soil was occupied, there was from a load to a load and a half an acre. Had the whole of the seed vegetated at the time of sowing (and that it did not vegetate then, was not owing

82.

SEASON
of
SOWING.

82.
SEASON
of
SOWING.

to the *lateness* but the *dryness* of the season), there would, in all probability, have been, notwithstanding the droughtiness of the summer, and the condition of the soil, between two or three loads of well corned oats an acre.

The patch sown first, though peculiarly moist and cool, and fully furnished with plants, bore no greater burden, and much less luxuriant plants, than the part sown last; though of a drier nature and not half covered.

Therefore, this year's experience, with OATS, has strengthened my opinion of the propriety of sowing by the SEASON, rather than by the SUN.

However, for the reason mentioned, it may be prudent, in an *early* season, to *follow*, in a *late* one, to *precede*, the PROGRESS OF SPRING.

It may, nevertheless, be proper to remember that this caution is drawn from *reason*, and not from the *experience of this year*; for the oats sown two days after the plowing of the fallow were evidently stronger, more healthy plants, than those sown three days before the circumstance took place.

It is observable, however, that the part sown first, was first ripe; and that the TIME
OF

OF RIPENING, throughout the country, corresponded, in this case, with the TIME OF SOWING.

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SEASON
of
SOWING;

HARVEST-
ING
OATS.

Many oats, in different parts of the district, have this year been "SHEAVED:" namely, mown *outward*, gathered from the swaths, bound, and shucked; in order to be "cut," with greater propriety, into chaf, or "cut-meat," for horses, &c. &c. this year of scarcity of hay. Sheaf corn lies straighter in the cutting box, and is of course less liable to be cut at a double, than loose corn.

The common price has been five shillings an acre, for mowing, binding, shucking, and raking.

I had about three acres harvested, in this way; partly for the purpose of cutting; and, in part, to secure the fodder, and to put it, as much as possible, out of harm's way, this hazardous harvest. The rest, getting ripe too fast for the few hands I had in employ, I harvested in swath.

The whole received a considerable quantity of wet; and those which were exposed in swath, were of course considerably hurt. The corn discoloured and the straw wea-

M 4

thered;

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HARVEST-
ING
O A T S,

thered : while those in the sheaves were little, or not at all, worse for the weather. The superior quality of the straw of those which were sheaved is, this extremely scarce year for fodder, worth ten times the extra labour. Indeed, if turning, cocking, extra trouble in carrying and ricking, the extra shedding, and the raking after the carriage be taken into the calculation, the saving would perhaps be found on the side of the sheaves.

Of this, at least, there is no doubt, that, in a catching harvest, the SHEAVING OF OATS, if hands can be got, is incomparably better management, than exposing them in swath. For, if mown oats be carefully gathered, and somewhat loosely tied in small sheaves, carefully set up, and securely covered, there is scarcely any harvest untoward enough to hurt them.

In the harvesting of OATS, the primary objects, to be attended to, are the *colour* of the grain, and the *sweetness* of the fodder. Clean *thrashing* is a secondary consideration : for, if a few light grains be left in the straw of *oats*, the fodder is the better, and the sample more sightly,

Hence

Hence OATS should be harvested, as much as may be, in the *shade* (see MIN. 10.), and, of course, in COVERED SHUCKS, rather than in SWATHS, or in SINGLE SHEAVES. See YORK, ECON.

But, in harvesting WHEAT, different principles take the lead. The *colour* is not an object; while *thrashing clean* is of the first importance: for the grains which are left in the straw of *wheat* are not only lost, but the thatch is injured by them.

Hence WHEAT cannot be exposed too much to the weather, provided it is not injured by sprouting: nor OATS be dried too much in the shade; provided they will thrash without very extraordinary labour.

A penny or twopence a quarter, in the price of thrashing oats, is inconsiderable, compared with sweet fodder and a bright sample.

Oats in shucks, well covered, are nearly as safe in the field, as in the rick yard; and it matters not much, whether they remain there a week, a month, or a longer time; provided, in the end, they be carried perfectly dry.

82.

HARVEST-
ING
OATS.HARVEST-
ING
WHEAT.HARVEST-
ING
OATS.

SEPTEMBER

83.

83.

HARVEST-
ING
BARLEY,

SEPTEMBER 11. The BARLEY, at length, is mostly harvested: except some late sown pieces: and some which, coming up at twice and much of it at the latter coming, is suffered to stand, to let the second crop mature.

Very little, however, stands in the latter predicament. I have seen barley cut, even a week or ten days ago, literally as green as grass! and carried before it was half dry: neither corn nor hay! and this, probably, because its owner would not have it said that he was behind his neighbours: the struggle throughout harvest, whether of hay or corn, being about who shall finish *first*: no matter *how*!

This has been a difficult barley harvest; and, it is highly probable, that, got in the condition it mostly has been, not half the barley grown in the district will MALT. Whereas, under common good management, the weather has been such, that most, if not all, of the early ripe barlies, might, I apprehend, have been rendered fit for the maltster's use,

But

But the injury done to the grain is, this year, the smallest crime : spoiling the straw, when FODDER is ineestimable, is a crime, not only in husbandry, but against the community.

From the state in which I have seen barley carried, and from what I have gathered on the subject in conversation, it is probable, that the majority of the barley, of this year, will come out of the mow or rick, *mouldy*, or *mow burnt*.

Mr. — of — had a rick very fortunately fell down ; otherwise, it seems, it must have taken fire. One of his tenants, taking the alarm, set to work to pull some out of the bay of a barn, which was in a similar or a worse state. And Mr. — of —, it seems, thought it prudent to do away the risk of setting his barn on fire, by a similar expedient *.

The

* It came out afterward, that Mr. — of — (one of the largest, and called the best, farmer in the country) spoilt the greatest part of his crop ! Also Mr. — and Mr. —, both maltsters ! † also Mr. — and Mr. — ; and at length, that there was scarcely a farmer in the country, who had not “ pulled to pieces ! ” What a lesson, this, to the harvesters of barley !

83.

HARVEST-
ING
BARLEY.

83.

HARVEST-
ING
BARLEY.

The fact is, the barley of this year has heated more than usual; and for an obvious reason. Although the first crop might be thoroughly ripe when cut, the second (which almost all barlies had more or less), and perhaps a third, were in a grassy succulent state; and not being allowed time enough to weather, nor a sufficiency of sun and air to render it crisp at the time of carrying, it was, of course, carried heavy, soft, and full of sap; and if not cold enough to run into cakes of mould, generated, of course, an undue degree of fermentation,

84.

TURNIP
BEETLES.

SEPTEMBER 12. *August 7.* Caught seven TURNIP BEETLES; see MIN. 61; put them into a phial; and fed them with slips of leaves of fullgrown turneps.

August 9. Some eggs excluded, and stuck to the side of the bottle; resembling the eggs of common flies,—flyblows,

August 14. Five still living and active (two escaped). They have grown very considerably,

August

August 19. By way of experiment, fed them with young turneps, in different states. They prefer young feed leaves to those which are older; and to young rough leaves.

In feeding, they begin upon the *sides* of large leaves (even feed leaves), eating them into pits, or sometimes through into holes; but of young tender seedling leaves, just burst from the seed, they begin upon the *edge*; taking it between their forceps, and pinching it off, piece after piece, very dextrously.

They are not, however, voracious:—a very small quantity, even of this delicate food, satisfies them. I apprehend, that one pair of very small feed leaves would last one of them two days.

August 21. They have eaten a young tender rough leaf almost up; little more than the nerves remaining; while the feed leaves of the same plant are untouched; having probably become stale and unpalatable.

Continued to feed them with slips of large leaves; sometimes neglecting them, perhaps, for three or four days; until the slips became dry

84.

TURNEP
BEETLES.

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TURNIP
BEETLES.

dry and shrivelled : nevertheless, in this state, they fed upon them.

September 8. One died : perhaps weak through want of food ; and getting itself attracted to the bottle, in a drop of dew, exuded from the slips of leaves ! could not extricate itself.

September 11. My curiosity being gratified, by five weeks observation, and lest similar accidents might happen through neglect, I smothered the remaining four with sulphur.

When we reflect on the small quantity of food these little insects eat at a meal, it seems almost incredible that a crop of turneps should be destroyed by them. If they ever do cut off a crop, of which I begin to have my doubts, their number must not only be immense, but they must take the plants in some critical state ; either at the instant the seed leaves are unfolding, or in the moment the rough leaves are bursting forth ; while each germ is but yet a meal.

But even admitting this last to be the case, they can devour only a certain quantity ; and the most effectual remedy, or prevention of the evil appears to be that of providing

viding enough for them to eat, and enough to leave : that is, to sow a sufficient quantity of seed, to raise plants enow for the beetles, and enow more for a crop.

ONE POUND OF SEED sown broadcast, let it be sown ever so skilfully, is barely enough for a crop ; and affords not, of course, a plant for the beetles ; or, if the beetles choose to partake, there remain too few for a crop.

The beetles, however, seldom clear the ground entirely. From which may be inferred, that a pound of seed is sufficient for them : and it appears to be no more than common prudence, to sow, at least, TWO POUNDS OF SEED, instead of one ; the usual quantity of this district. In a difficult season, THREE POUNDS an acre, I am of opinion, ought to be sown.

I am clearly of opinion, however, from the foregoing experiments on the beetle, as well as from my experience, this year, in the field,—and from ample observations, on the infant crop of CLOVER as well as of TURNEPS, during the last fifteen years,—that the blame is frequently thrown upon the
“ fly,”

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TURNIP
BEETLES.

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BEETLES.

“ fly,” when the destruction of these crops is owing to some other cause.

A concurrence of circumstances, this year, tend to show that the cause originates in the SEASON.

Turneps, sown during the former part of June, succeeded,—escaped in a manner unhurt,—because, at the beginning of the month, the soil had been moistened nearly plow deep, by rains which then fell (see ART. WEATHER). The seed of course vegetated, and the young plants, finding a sufficiency of *moisture in the soil*, struck downward, pushed out their rough leaves, and thrived, notwithstanding the *dryness of the air*.

I recollect an observation made, at that time, by an observant and superior manager, that it is not *dry weather*, alone, which renders the “ fly” mischievous; but *showers in a dry season*; and, dropping the idea of the fly, there may be much truth in the observation.

Thus, the moisture of the soil, given by the rain of May-June, being exhausted, by a fortnight’s dry weather, turneps, sown
after

after the middle of June, (see MIN. 61.) either came up partially, or did not vegetate until the thunder showers of July; during which, loud complaints, from every quarter, were heard against the "fly."

The cause of destruction, in this case, appears evidently. These showers, none of which, perhaps, moistened the soil more than two inches deep, were sufficient to induce the seed to vegetate; but, by the time the seed leaves were formed, the moisture was wholly drawn off, by the intervening days of drought; and the plants, deprived of nourishment, passed away, as by a charm; parched up, as in an oven.

Again, those sown the first week in August (see MIN. 87.) after the steeping rain of the third of that month, flourished in defiance of the united force of insects; because the soil was fully and *permanently* (not transiently) moist. The seed vegetated, the infant plants pushed on into rough leaf, and might be said to rise without a check; notwithstanding the beetle, the bug, and the tenthredo, were in force*.

Also,

* Since these Minutes were written, a *discovery*, it seems, has been made, corroborating the above idea, that the "FLY" is not guilty of all the mischief, which

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TURNIP
BEETLES.

84.

TURNEP
TEN-
THREDO.

Also, on the 7th *August*, put four TEN-THREDO FLIES into a phial, and secured its mouth, with a piece of gauze tied over it : and on the 9th *August* added three more.

The

is commonly laid to its charge ; but attributing the latent cause of injury, not to the SEASON, but to a SLUG : rolling in the night being recommended as a remedy.

That slugs are destructive of crops, in their tender state, is well known to the gardener, and, in some instances, to the farmer ; particularly to the growers of flax (see YORK. ECON. ii. 72.).

In this case, however, the crop succeeds *forward*, which may be supposed to be full of slugs and other vermin. But how a *fallow*, which has been, or ought to have been, some days or weeks, exposed to the sun and winds, without any thing vegetable upon it to support slugs, should nevertheless contain enow to eat up a turnep crop in a day or a night, is not quite so evident. And how, in any case, they should be led to cut off a crop, in twentyfour hours, which for several days, perhaps, they had left untouched (for in such way an infant turnep crop too frequently makes its exit), is still more mysterious. Their motion is slow, even to a proverb ;—they have neither wings to fly, nor feet to walk ; they are, of course, bred in or near the soil they inhabit, and, as other animals, feed, no doubt, daily and progressively.

I do not mean to say that the slug is not an enemy to the turnep crop, especially on fresh ground, which has not been sodburnt, as well as on ill made fallows ; on which, it is highly probable, they are, as the beetle,
every

The first four died the 11th and 12th August: and one of the last three, the 14th; when the other two drooping, and showing signs of hunger or thirst, I put the midrib of a turnep leaf dipped in water into the phial. They drank a little of the water, and one of them sucked the end of the leaf, which had been just cut, and was full of sap. But still they drooped. Gave them bread steeped in water; but they refused it. Seeing them very evidently starving through want of food, I became anxious to administer relief; and, after trying various foods and liquors without effect, at length, thought of sugar and water:

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—they

every year, and in all seasons, more or less hurtful; and rolling may not only be destructive of them, in some degree at least; but may, by closing the pores of the surface, in a dry season, be serviceable to the plants, in keeping in the requisite moisture.

However, without intending to join in the ridicule that has been excited, by the manner in which this *secret* has been divulged, I am of opinion that the only *practical* benefit the *public* are likely to receive from the discovery, is, that of its acting as a stimulus, to induce the farmer to FALLOW, long enough to destroy the roots and seed of weeds, or *vegetable vermin*, and still longer, until he has destroyed the slugs, and, perhaps, other *animal vermin*, with which his soil may be inhabited.

84.

TURNEP
TEN-
THREDO.

84.

TURNEP
TEN-
THREDO.

—they ate it voraciously ! licked it from the end of a cork. Eat it off my hand ! revived.

August 15. The end of a cork, which I last night dipped in dissolved sugar, is nearly cleaned. Both of them lively, though the morning is cold. Warmed the bottle by holding it in the palm of the hand, and by breathing upon it : they immediately gave a proof of their health and *vigour*.

From the observations and reflections on these mischievous insects, this year, the most probable means of avoiding their mischief are those of observing the coming of the flies, and, as soon as they disappear, mowing off the leaves of the plants : thus destroying, with certainty, the caterpillars in the nidus state.

TURNEP
BUGFLY.

Also, on *August 7*, put some seed leaves, with both BUGS and FLIES upon them, into a third phial.

The leaves in a few days withered, and the bugs died.

August 11. Two of the flies alive. Put in a fresh piece of leaf. The same day perceived a minute bug upon this piece of fresh leaf ; and presently afterward (in the course
of

of a few minutes) another; both of them *perfect* and *active*.

August 15. Found one with a white egglike cyst fixed under its abdomen. And another, (dead and fixed to a blade of oats), which has all the appearance of pregnancy.

August 19. I find a fresh brood among the young plants of the second sowing; but they are not so numerous as on the first.

After this time, some heavy showers and cold nights checked their mischief, and most of the turneps, sown the beginning of August, received little injury from them.

This appears to be a *new* enemy of the turnep crop. It has not at least been *observed*, I apprehend, in this or any other country, before this year. Or, perhaps, they have been more numerous, this year, than was ever known before. Lying close on the underside of the leaves, a few may pass unnoticed.

As to a PREVENTIVE, or a REMEDY of the evil effects of these insects, should they occur again in the abundance they did this year, none perhaps, altogether effectual, can be applied with certainty. Being, in the bug state

84.

TURNIP
MUGFLY.

especially, extremely soft, tender, and easily crushed, a light roller (especially if muffled in some soft elastic covering so as to press in between the clods) might, perhaps, be sufficiently effective in destroying the insects, without being injurious to the plants*.

85.

CREEPING
CROWFOOT.

SEPTEMBER 13. Observing the DAIRY cows neglect a tolerably good grass pasture, for an oat stubble, which appeared to have nothing but *weeds* to invite them, I went among them to discover what plant was their inducement.

The oats having succeeded wheat (see MIN. 82.), the ridges, in plowing for the oats, had been rebacked up; and, to prevent their lying too sharp, the first pair of furrows had been dropt somewhat short of each other; leaving a narrow stripe or seam, upon each ridge, unmoved and uncovered. Of these seams the CREEPING CROWFOOT, with

* See NOB. R. ЕРОМ, vol. ii, p. 290. for an instance in which a heavy roller, run two or three times over young turneps, did not appear to be injurious, to the growth of the plants.

with which the wheat stubble abounded, had taken full possession; having formed a mat of herbage on each ridge; and the cows, each taking her ridge, were tracing these lines of herbage. A farther evidence that the *RANUNCULUS REPENS* is a valuable species of herbage. See GLO. ECON. v. i. p. 178.

85.

CREEPING
CROWFOOT.

86.

SEPTEMBER 16. I am now manuring the young grasses of No. 9. (off which the barley is just carried) with a pile of compost, *created*, in a manner, out of nothing: the sweepings of the rickyard, hovels and other holes and corners (which have not, probably, been cleared for many years past), thrown into a mudpit to digest: also rubbish from buildings and repairs, &c. &c.

RAISING
MANURE.

It has had some labour and attention bestowed upon it; but not equivalent to one fourth of its present value. About fifty cart loads of rich and ripe compost *.

N 4

SEPTEMBER

* This, not by way of blazoning my own industry, but of stimulating that of others,

87.

87.

CULTURE
of
TURNEPS.

SEPTEMBER 25. Yesterday, finished hoing turneps.

The probable scarcity of winter food induced me to convert the intended summer fallow of No. 5.—an unpardonably foul young ley—into a turnep fallow.

This foul piece of “seeds” was broken up the second week in June; crossed in the second week of July; manured, harrowed, rolled-and harrowed, plowed, and sowed, the first week in August.

Notwithstanding the rolling, harrowing, and rain, the surface remained rough after sowing; some of the clods being yet unsubdued; and the roots and stems of the grasses and weeds remained entire, though to appearance dead.

The seed, however, vegetated, and the plants came away, with unusual vigour and firmness: I never saw the seedling leaves so large and luxuriant: while those from the re-sowing of No. 2, (see forward) a much richer and a much *finer* fallow, were small and puny.

If

If one may venture to reason upon this capricious crop, the firmness (luxuriance, succulency) of the former was owing to the POROUSNESS of the soil, given by the unreduced clods and vegetable substances, intermixed with the mold; and the weakness of the latter, to too great a fineness and cleanness of soil, which, falling under the harrow into a compact state, became too close and suffocating to an infant plant, which seems to delight most in a light open soil.

It was a general observation, at the time, that young plants on land which had been sown, only once, were much stronger than those on land which, having missed the first sowing, had been resown; and which had, of course, been reduced to a fine pulverous tilth.

This difference, however, might not be altogether owing to a porosity of soil in one case, and a compactness in the other; but, in part perhaps, to the surviving insects in the latter case. But this was, by no means, the only cause of difference. There were plants in No. 2. without an insect upon them. And for another instance of undigested vegetables
being

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CULTURE
of
TURNEPS.

87.
CULTURE
of
TURNEPS.

being serviceable to young turneps, see NORF. ECON. v. ii. p. 129.

Observing last year, in No. 1, that a space on each side of the INTERFURROWS, of a width proportioned to the degree of flatness and wetness of the soil, was left destitute of turneps, owing to the moisture which settled down the sides of the lands, as well as to a coldness and poverty of soil, which will always take place when land, anyway retentive, is raised into high wide ridges, agreeably to the practice of this district,—also observing this year, in No. 5, that some of the couch which had been drawn to the surface by the harrow, had, notwithstanding its apparent deadness, begun to shoot,—I plowed two bouts (two pair of furrows) in each interfurrow of this piece, and, picking off the couch from the sides of the lands, threw it upon the landlets thus formed in the interfurrows*.

There is a triple advantage arising from this piece of management. The cleansing of the land (the interfurrows most particularly),
encreasing

* This furnishes an evidence, were any evidence required, that, when land is *very foul*, even a TURNER FALLOW in a dry season, is inadequate to the purpose of cleansing it.

encreasing the turnep-growing surface (last year there was, on a par, a yard's width on each side of every furrow without turneps upon it, or bearing such as were not worth carrying off), and lessening the quantity of HOING (which I had done cheaper on this account). And the gardenly neatness, given by the operation, is at least pleasing to the eye.

The intervals, now getting green with seed weeds, will be stirred, as soon as a fit opportunity may offer,

Began HOING the 26th of August,—at five shillings an acre, with ale and beer : to be hoed with six inch hoes ; all the ground to be cut over ; and the plants to be set out very close, as nine or ten inches ; the season being too far spent to expect any great size of roots,

Never, perhaps, did plants grow so rapidly, or so firmly, as the first hoed ones of this piece : and it is a striking circumstance, in favour of HOING, that the growth and size of the plants did not keep pace, or succeed each other, according to the times of sowing, but followed the hoe with great exactness.

The

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The regular succession was broken by thinning the clusters of part only (see MIN. 79.). And what is equally interesting, and in favour of hoing *early*, those hoed the first day are, in appearance, several weeks forwarder than those hoed the last; the tops and bottoms three times the size; though there was but one week's difference in the time of hoing! The difference, indeed, is so striking, and so regular, that the day of hoing might almost be known by the size of the plants: a circumstance to be accounted for, only, in the rapidity of their growth in this instance.

TURNEPS.

The other piece of turneps which I have in cultivation this year (No. 2.) is after oat stubble, winter and spring fallowed (see vol. i, p. 171.), and manured as No. 5. Part sown 23d June; the remainder the middle of July.

But the whole of the first sowing being in a manner entirely cut off, by the bug and beetle (see MIN. 61.), this piece was, after having waited some time in hope that a portion of the plants might have survived, wholly RESOWN, at different times; most of it being previously *plowed*; but a part of it.

it only run over with a pair of rough *harrows*; previously to the second sowing.

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THE QUANTITY OF SEED in this sowing, as in the first, *one* pound an acre: excepting on one land which was, by way of experiment, sown at the rate of *three* pounds an acre.

The first sown lands, of this second sowing, suffered much from insects, and became very "gally;" except upon the ridges, where the casts had overlapped, and where the plants came up very thick; and, there, the insects scarcely touched them! While the plants, which stood thin, dwindled away daily, those, on the ridges, pushed on apace; so as soon to require thinning.

This (together with the foregoing reflections, see MIN. 84.) led me to the experiment, just mentioned, of sowing a land three times as thick as the rest. The result of which is, that while the rest of the piece is scattered with "galls," or vacant places, this land has not, generally speaking, a plant wanting.

Another incident attending this resowing is very observable, and not easily to be accounted for. The part sown after *harrows* only,

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only, had more plants, and came sooner to the hoe, than the part *plowed*! The plants, at present, evidently more numerous and more thriving.

Query, did more of the feed vegetate in this part; less of it being buried? or did the small seedling weeds, which were pulled up by the harrows, and buried among the surface soil, assist in keeping it loose and open?

It is also observable, in this piece, as well as in every other which I have noticed in the district, that the headlands and sidelands escaped best: so that the *BUGFLY*, like the *TENTHREDO*, appears to have an antipathy to shade. See *NORF. ECON.* v. ii. 288.

The major part of this piece (resown the 9th and 10th of August) appearing, to the eye, thin, and the plants faint, I had my doubts whether they would require to be hoed: except the thicksown land and the headlands, on which the plants had begun to draw each other up.

But the next week proving showery, warm, and *windy*, such a strength of vegetation took place as I have seldom seen. The plants doubled their size in the course of a few days;

days; so that the clusters began to run up; and no hoers to be had.

87.

This was a predicament which required an expedient. For all the latefown turneps being in a simlar state, the few hoers the country affords were all employed.

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Having no alternative, I set the smith to cut up an old fithe into three turnep hoers; which he did in the course of a few hours; and, the 14th September, set three labourers to work—men who generally speaking never had hoe in hand—to thin the clusters: and, the weather continuing fine and the plants continuing to thrive amain, they afterwards assisted in singling the plants (see forward).

In this piece, the INTERFURROWS being clean and no couch to be picked off the lands, which lay in the state of garden beds, I plowed only one bout in each; but as wide as the plow would reach it, so as to lay the soil up into a ridglet; and as deep as it would go, so as not to bring up fresh mold; in order to lay the sides of the lands sufficiently dry, with as little loss of surface as possible.

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This summer has been singularly difficult with respect to the cultivation of the turnep crop. Some of the turnep farmers, west of the Tame, are said to have sown four times & three sowings (on the same ground) have been common throughout the country; and, at last, very few crops which will pay for the expence of hoing.

No man, I believe, on this side of the Tame, nor, I am told, on the other, has eighteen acres of turneps equal to those of No. 2. and No. 5. And, having paid more attention, and thereby obtained more *experience*, in the turnep husbandry, this year, than on any former occasion, I will endeavour to set down what appears to me, at present, the most eligible method of cultivating the
TURNEP CROP, ON RICH RETENTIVE SOILS.
For, although this crop be more peculiarly adapted to situations, where the soil is light, and the subsoil absorbent, it may, nevertheless, be practised, at least on a small scale, in almost every situation.

1. If the soil be foul, or if early sowing be proposed, BREAK UP in autumn, by a ricebalk or half plowing, across the lands; gathering

gathering a bout in each interfurrow, and opening the cross trenches; in order to lay the soil as dry as possible during the winter. But if the soil be tolerably clean, and early-sowing be not wanted, break up in the spring; in order that the roots and stems of grasses, &c. may remain in an undigested state, and assist in rendering a closely textured soil loose and open, and fit for the reception of the weakly fibres of seedling turneps; whose roots have a downward tendency; yet are, in their infant state, by no means robust enough to struggle with a stubborn soil;—though it is highly probable, from the incident this year in No. 2. that, having once established their taproot, they become a stout hardy plant, able to penetrate a compact soil.

2. CROSS, and give the FIRST STIRRING (the third plowing) without a previous harrowing;—and, if the root weeds be not yet subdued, give a fourth plowing, before the harrows be suffered to come upon the soil.

3. Spread DUNG on the rough plit, and in a middle state as to digestion: if too long and strawy, it is pulled up by the harrows, and becomes a cause of galls and clusters;—

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if wholly digested, it loses the valuable quality of rendering the soil loose and open.

4. As the dung is spread, harrow and ROLL-AND-HARROW, until the surface be perfectly reduced;—and, in this state, let it lie until the seed weeds have vegetated.

5. Turn under the weeds and manure, by a mean-depth, or somewhat shallow plowing; and, if the soil be in a proper state, and the season of sowing be arrived, sow on this plowing; if not, harrow, and roll-and-harrow, letting another crop of seed weeds spend themselves; remembering that the stronger the weeds are before they are plowed under, the fitter the soil will be for the reception of the seedling turneps; most especially if it be of a tenacious quality.

6. Harrow, immediately, the plot of the seed plowing, with rough harrows; in order to give a uniform looseness to the surface, as well as that the seed may be buried at a uniform depth.—Sow, —and immediately COVER with one full tine of a pair of light harrows,—and, *if possible*, with the horses trotting.

7. For

7. For a crop to be eaten off in autumn, sow the "*tankard* turnep" * — in JUNE :— for winter and spring feed, sow the common *white loaf* in JULY : and if these miscarry, or if stubble turneps be attempted, sow "*stone*" turneps † in AUGUST.

8. In a common season, sow TWO POUNDS of SEED an acre ;—all upon the same surface ; for, perhaps, the more nearly together the plants come up, the less danger there is of their being wholly cut off by insects ;—the beetle especially : but, if insects are known to be in force, or if any doubt arise, either as to the quality of the seed or the season, sow at least THREE POUNDS of SEED an acre.

9. If the soil lie in broad round lands, agreeably to the practice of this country, plow one, two, or even three, bouts in each INTERFURROW, according to the width, height, and wetness of the lands, as soon as the seed weeds have done vegetating ;—and, if any root weeds appear to be alive on the surface,

O 2

or

* The "*pudding*" turnep of Norfolk ; which has a rapid growth ; but, standing high above the ground, cannot bear the winter.

† A small hard sweet turnep, which stands the winter, with singular hardiness.

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or being dead, if any are likely to impede the hoe, pick them off, and cast them upon the intervals.

10. Begin HOING whenever the plants of the clusters begin to interfere, and draw each other upright; for the leaves of a turnep should spread horizontally upon the ground, and, in the first stages of their growth, take the form of the rose.

If there be many clusters and thin places, the CLUSTERS should be THINNED with the HOE. But if the crop be uniformly too rank, and the plants too thick upon the ground, the HARROW perhaps is a more eligible implement; as giving a most desirable openness to the surface, and freedom to the tender fibrils of the seedling plants.

As soon as the plants, in general, are free from the danger of being buried by the hoe,—namely, as soon as the leaves are as broad as the thumb, and the plants as large as the palm of the hand,—begin to set them out;—the early sown ones from ten to twelve or fourteen inches asunder, the late-sown ones from seven to nine or ten;—the former with eight to nine inch hoes, the latter with five to six inch; being careful, this first hoing,

to

to cut over the whole surface, and to leave the plants thick enough; being less anxious about a double plant, than about cutting up a single one where a plant is wanted.

The *early sown* plants should have a SECOND HOING, before their tops begin to interfere; in order to displace supernumerary plants, and give the plants set out the entire possession of the surface.

The *backward* plants, however, can seldom require more than ONE FULL HOING; there is no danger from a second crop of weeds, in autumn: nevertheless, if the plants be promising, they should be looked over a second time, and the supernumerary plants be displaced.

11. If the first sowing miscarry, and the failure be fully and clearly ascertained before the weeds have got too strong to be eradicated with rough harrows, *harrow only* before RE-SOWING; but, if the weeds have got fast hold of the soil, or if the season be too moist to obtain the intention by harrowing alone, *plow* a mean-depth, and harrow, sow, and cover as before.

It is observable, however, that many tolerable crops of turneps have been plowed under

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for want of judgement, or of patience to see the event. The plants of the two first sown lands of No. 2. looked, once, as not being entitled to the occupation of the soil; but, now, they wear the appearance of a tolerably full, fair crop,—of much greater value than a fresh stock of plants, obtained from a third sowing, could have arrived at: beside the saving of the labour and feed.

HOING
TURNEPS.

The circumstance of being disappointed of hoers, obliged me, for the first time, to give lessons on TURNEP HOING.

The errors of beginners I find are these: they take too long hold of the hoe, and lift it too high; cutting off the tops of the plants before them, as they bring the edge of the hoe to the ground. They strike too quick; are too indecisive: their strokes have no meaning; and, of course, as often do harm as good: they keep their eye upon the *hoe*, not upon the *plant* to be set out: they pull the hoe straight forward, cutting, or rather pulling up, every thing in its way; and raise it out of the ground *toward* them; thereby throwing the mold, with which it is loaded,
upon

upon the plants already set out : in short, they handle a hoe as they do a mattock.

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The rules I laid down to them were these :

Strike slowly ; and suffer the hoe to remain *in* the ground until the eye has determined upon the next stroke : resting upon the arms, in a stooping posture ; with the right hand from fifteen to twenty inches from the head of the hoe, and the left hand twelve or fourteen inches above the right.

In fetching the next stroke, not to raise the hoe perpendicularly, nor to disengage it from the mold by pulling it *toward* them ; but to shove it *from* them, nearly horizontally ; never suffering its edge to rise higher than the tops of the clods ; keeping it among or under the leaves, rather than above them : and, in making the stroke, not to draw the hoe in a direction perpendicularly to its edge, but somewhat obliquely ; by which means it cuts easily, and keeps its edge clean ; a knife forced down a stick, at rightangle, would be much less effective, than one drawn obliquely, in the usual manner.

Let each stroke have its special intention ; and, generally speaking, each stroke ought

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to single a plant: it ought at least to do something; and that particular thing should be determined upon, and the eye finally fixt, before the hoe be lifted; lest, for want of a determinate object, it be drawn at random, and do mischief instead of good.

Practice alone can give a quickness of judgement, a quickness of eye, and a quickness of effective strokes: consequently a learner in turnep hoing, like a learner in music, in dancing, or in any other art, should begin slowly, and let a quickness of motion encrease with his practice.

Two young fellows who were anxious to learn, and who followed implicitly the rules laid down to them, became, in two days, tolerable hoers.

88.

LATE HAY-
HARVEST.

SEPTEMBER 27. There are considerable quantities of LATTERMATH HAY now down, and spoiling with the wetness of the season.

This month, throughout, has been a second hay harvest: not of lattermath, only, but of such mowing grounds, as never rose

to

to the fithe, until after the rains set in, and which have, since, been kept free from stock; for the purpose of trying, at least, to lay up a little hay from them.

But the hope has been in a great measure frustrated. Very little, if any, has been got in a state fit for fodder! What a temper-trying year for the farmer!

88.

LATE HAY-
HARVEST.

89.

SEPTEMBER 27. Some time ago, Mr. Hill of Hall End shewed me a striking improvement which he is making upon a coarse meadow, by MARLING.

MARL

From an unproductive rough meadow, full of all kinds of weeds and rubbish, it is become a fine turf: full of white trefoil, the meadow vetch, and the finer grasses: and what enhances the value of the improvement, the herbage is not only better, but the produce (Mr. H. says) is much greater than it was formerly.

The spirit of EXPERIMENT led Mr. H. to this marl. Wishing to improve this meadow, he set on a variety of manures, and among the

EXPERI-
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the rest some white earth which he found, by accident, in a large excavation on his farm; no doubt, in former times, a marl pit.

The first year, the alteration was not great; but the second (namely, last year) the *discovery* came out: some experiments with swine's dung, nightsoil, &c. &c. fall short of the marl. Water let in from an adjoining road stands next it. This appears to be a valuable discovery; and is a striking evidence of the use of EXPERIMENT.

MARL.

Yesterday, I took a look at the pit; which is now in work.

The jam or bed rises to within eighteen inches of the surface; and Mr. H. is following it ten or twelve feet deep; and probably not at the bottom.

A specimen I took from the middle of the jam, as well as that which I took off the grafs, is strongly calcarious*.

Extraordinary, that a bed of *grey* marl should occur in a country, in which nothing but *red* earths, in any degree calcarious, should be found. It is observable, however, that North Warwickshire is divided from *this* district,

* But see vol. i. p. 705.

district, by the valley through which the Anker runs; and they may, in the general rupture, have been brought from distant situations, or have been torn from different strata.

And it seems more extraordinary that a mine of calcarious earth, which has evidently been known in ages past, should have been so entirely neglected, and so effectually forgot, that, had it not been for the spirit of EXPERIMENTING, it might have lain neglected for ages to come,

There are evident vestiges of a pit—an immense excavation—(with bushes and even trees growing in its bottom) containing half an acre or an acre of ground, which appears to have been all worked over, ten or twelve feet deep; and, on one side, fifteen or twenty!

It is highly probable, that, if proper search were made, other beds of a similar nature might be found in North Warwickshire.

90.

SEPTEMBER 23. This year, I have grown thirty acres of BARLEY: namely, No. 9. eighteen

89.

MARL.

BARLEY.

90.

BARLEY.

eighteen acres; *after summer fallow*; sown between the 23d April and the 3d May: and No. 1. twelve acres; *after turneps*; sown between the 5th and the 8th May.

The circumstances which have attended the VEGETATION OF BARLEY, this year, are such as seldom happen.

On the north sides of the lands of No. 9. and upon the springy parts (see MIN. 106.) the majority of the seed, sown in *April*, came up in due time after sowing. But on the south sides of the lands (lying nearly east and west, but reduced to gentle swells) the greater share lay in the ground, until the showers of *May-June* brought up a second crop; and the whole did not appear, until the rains of the *middle of June*: excepting a land whose seed was plowed under (see MIN. 41.); and this came away, chiefly, at the time of sowing.

The latter sowing of this piece, came up in a similar manner; except that a less proportion rose, at the time of sowing.

The other piece, No. 1. being, at the time of sowing, not only dry, but cloddy, scarcely any part of the seed vegetated, until the *beginning of June*; and much of it lay in the ground, until the *latter end of June*. Beside, that which
came

came up in the beginning of June, received a check, by the succeeding drought; so that, in the month of July, there was no appearance of its ever rising to the fithe, even as herbage, much less of its reaching maturity as a corn crop.

However, the ample rains, in the wane of June, gave a loose to it, and, during the whole of August, it made an extraordinary progress. But the season was far spent; and the blight, which took place the beginning of August, did not only blacken the straw, but has shrivelled the grain (a circumstance I never observed before, in barley): and, added to this, the third crop is now coming out into ear! so that the crop, taken altogether, is in the most awkward state: the little which came up first, is discoloured by the blight, and by standing too long; the second crop is not yet ripe enough to cut; and the third is now in green ear!

Finished carrying No. 9. the 24th instant.

Some circumstances, which attended the HARVESTING of this BARLEY, require to be minutely.

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BARLEY.

HARVEST-
ING
BARLEY.

Began

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BARLEY.

Began mowing, the 31st August, with NAKED SITHES; agreeably to the custom of this country.

But the naked sithes, particularly in the hands of two of the mowers who were inexperienced workmen, leaving the work in a slovenly state, especially in a part of this piece which was shorter than the rest, I had bows fixed to the heels of the sithes of these inadepts. The consequence was, they became the best workmen of the set: the fashion took; and, in a few hours, every man swung his bow, and made very good work*.

The weather being unsettled, this first cutting (enough to load one rick frame) had some rain.

By way of experiment, made some of the swaths into small rough bundles,—the common

* The slovenliness of MOWING CORN with the NAKED SITHE was never, perhaps, so conspicuous as it has been this year; when barlies, in general, being thin and short, it was impossible to gather many crops into whole swaths; much of the corn being dropped between the swathbalks: on the light lands westward of the Tame, the mowers could not form swaths of any kind; the corn falling where it grew; women being employed to follow them, with hayrakes, to pull it into swathlike rows.

mon cocks of this country,—when it was nearly, but before it was quite dry. Much rain fell, the next night, and showers, all the next day: the **SWATHS** wet through; the cocks little worse for the weather!

The next day being fine, lightened the tops of the cocks; turned them upon fresh ground; relightened them, and neated them up; lest some flying showers might catch them: but the afternoon remaining dry, carried them, in the evening, in tolerably good order:—a day of fine weather sooner than the swaths*.

The second cutting of this piece (another frameful of the next ripe barley) was mown the 9th and 10th September.

By way of experiment, the weather continuing very wet and hazardous, set up five **SINGLE SHEAVES**, in the Yorkshire manner. See **YORK. ECON.** vol. i. p. 390.

While the **SWATHS** were sopped with rain and dew, the ears wet and the butts green and cold, the **SHEAVES**, from top to bottom, were perfectly

* When the soil is cold and moist, and the swaths in a *rough* state, this practice may often be eligible. See vol. i. p. 219.

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perfectly *dry*: a gentle breeze soon licks the wet off the ears; and, blowing through the skirts, keeps the fodder perfectly sweet.

The whole of this cutting (the five sheaves excepted) was finally dried, in cock; in which it had some showers. Nevertheless, by embracing fair opportunities,—to lighten the tops with a fork, and, when the side next the sun became dry, to turn them half round, with the same tool, thus exposing the shady side to the sun, and, in doing this, setting them on fresh dry ground on the sun side of their former situation, and, finally, when the tops were, by this means, fully dry, to turn them over, backward, into their former places, thus exposing their bottoms full to the sun,—they were carried, at different times, as they could be got dry, in much better order than could be expected at this season of the year, and especially in such weather as this season has afforded.

The weather, as well as the season, growing more and more precarious, I was not willing to hazard the remaining few acres of this piece, in swath; and, therefore, on the 13th September, began to mow it against the stand-
ing

ing corn, and to set it up in SINGLE SHEAVES; agreeably to the Yorkshire practice.

The workmen were all entire strangers to the operation; and the crop, in this part, was full.

The mower, with his bow, performed his task tolerably well. A man to form the sheaves, though he had a boy to make the bands, could not keep up with him; nor could two men bind and set up the sheaves! But all was awkwardness: a bow does not set the corn so fairly as a cradle: the binders had the sheaves to adjust, and their butts to beat level, and the art, or sleight, of setting up to learn: an art not readily attained by *men*; the *boys* soon caught it.

Having, however, now stepped aside from the beaten path of the country, and for the second time, turned tutor, I fortified my temper with a tutor's patience, and have not yet had it once disturbed! All, hitherto, has been attention and willingness to learn a practice with which every one seems pleased.

Employed a boy, at leisure times, to rake between the rows of sheaves, with a short-headed dragrake, and, as they became weathered and dry on one side, to turn them

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half round : thus exposing the shaded side to the sun : at the same time moving them on to fresh cleanraked ground ; afterward, drawing the rake along the swathbalks ; on which the sheaves were originally set, to keep their butts, as much as possible, from the cold wet ground.

Finished cutting this piece the 17th : before which, part of it had been caught up, on the intervening days of fair weather ; and, I am afraid, too hastily. The last cut part, after it had stood near a week, had eight and forty hours hard rain upon it, which cleared away the 23d at noon : nevertheless, at five o'clock the same afternoon, the wind being brisk, the sheaves, except in the bandplaces, might be said to be dry ! the GRAIN, above the bands, still bright and hard ! and the FODDER still sweet.

The next day being very windy and drying, and the upper parts of the sheaves having been got dry, by exposing both sides to the wind, they were thrown down, to expose and dry the butts, and, in the evening, were carried in tolerably good order.

The

The circumstances attending the barley crops of this year furnish ample grounds of discussion, with respect to the SEASON OF SOWING.

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TIME
of
SOWING.

The fact which stands first on the foreground is, that the success of the crop depends on the TIME OF VEGETATING, and not on the TIME OF SOWING: a fact, which though it may be said to be selfevident, was never perhaps so fully demonstrated, in practice, as it has been this year.

The times of sowing and the times of vegetating, of the barley under consideration, have been mentioned: namely, the major part of A. (part of No. 9.) came up at the time of sowing (the latter end of April), the remainder the beginning of June. The minor part of B. (the other division of No. 9.) vegetated at the time of sowing (the beginning of May), the majority coming up the beginning of June. Very little of C. (No. 1.) rose at the time of sowing: the principal part vegetated the beginning of June; and the remainder the latter end of that month.

It is observable, however, that the soil of this piece lying rough, and of course hollow, the showers of May-June, though they caused

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TIME
of
SOWING.

much of the seed to vegetate, were not adequate to the proper nourishment of the plants; so that they remained, in a puny stunted state, until the rains of the 18th and 19th of June relieved them.

Therefore, the failure of this piece was neither owing to the time of sowing, nor to the time of vegetating, but to the stubbornness of the soil, rendered still more unfriendly to the infant plants, by the untowardness of the season, after vegetation: otherwise, the crop of this piece would, in the ordinary course of things, have been similar to those of A. and B. and would have been the best crop of the three; because the greatest proportion of the seed vegetated the beginning of June.

For it has been evident, to common observation, that barlies which were sown and came up early, though they looked promising, in the former part of summer, fell away and dwindled almost to nothing, before harvest. The grain weak, and the straw short and feeble; barely able to support the light burden it had to bear. While the second crop of A. and B. more particularly the latter, was as stout well eared barley as could grow: from
twenty-

twentyfive to thirtytwo fullbodied grains in a head, and, notwithstanding the season, and notwithstanding this part was sheaved, near two loads of sheaves an acre.

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TIME
of
SOWING.

It has been already said, that this growth came up in consequence of the showers at the close of May ; and it is a remarkable fact that the hawthorn blowed the 1st of June !

It is therefore evident, from this year's experience, that, with a view to a fullness of crop, *barley should VEGETATE while the HAWTHORN is BLOWING.*

It is also observable, that the FOLIATION of the OAK was not, this year, a proper guide to the SOWING OF BARLEY. For although, in general, it foliates about the time that the hawthorn blows, its foliation, this year, took place twenty days before the blowing of the hawthorn ! The roots of the oak range deep, and may be influenced by causes which do not operate near the surface ; while the hawthorn feeds, principally, in the same pasture with the barley. It nevertheless seems *reasonable*, when the hawthorn blows late, to be before, rather than behind, the season of blowing. For it is observable, throughout, that the TIME OF RIPENING corresponds, in a

90.
TIME
of
SOWING.

great degree, with the TIME OF VEGETATING: unless when the maturation was disturbed, as it was in C. by an adventitious circumstance.

91.

CHANGE
of
SEED.

OCTOBER 1. In market conversation, the CHANGING OF SEED became the subject, Mr. ———, the largest occupier in the district, thinks it of no use. He has not changed his red wheat, for ten or twelve years; and yet experiences no falling off. Other farmers, who have done the same, are even celebrated for their seed wheat.

I never, however, have perceived so general a spirit for the changing of seed, as prevails in this district. Mr. ——— of ——— has some wheat just arrived from Cambridgeshire, which stands him in nine shillings a bushel, Winchester measure, and fetches it ten or twelve miles. He, on the other hand, sends some this year into Shropshire. Even the little field farmers have been accustomed to sow wheat of the southern counties; but, from what I can learn, the spirit begins to abate.

Indeed,

Indeed, the practice here, as everywhere else, seems to be founded on general notions; and no one appears even to reason upon its propriety; much less bring any other proofs of its utility, than "it must be so."*

91.

CHANGE
of
SEED.

92.

OCTOBER 1. It is remarkable that there is not, in this quarter of the district, a good crop of barley after turneps.

BARLEY
after
TURNEPS.

Mr. ———'s, though the first sown barley in the country, and on one of the best pieces of land in it, is worse than that of No. 1. And Mr. ———, who got his turneps off early, and his land turned over in time, and whose barley in the spring looked promising, had a very poor crop, at harvest.

Some years ago, the Shuttington farmers, by general consent, turneped their fat-

P 4

low

* I do not mean to say that the CHANGING of the "seed," or rather the VARIETY, of cultivated crops is of no use: I have long been of *opinion* that it is useful (see MIN. SURREY). I can say, with truth however, that I do not *know* it to be of any service. It appears to be, at present, one of those MYSTERIES of husbandry, which nothing, perhaps, but a PUBLIC ESTABLISHMENT will ever be able to clear up.

92.

BARLEY
after
TURNEPS.

low field. The consequence was, they constantly lost their barley crop: and, for this reason, I understand from different men of that township, the practice was discontinued*.

It strikes me forcibly, that, if TURNEPS be cultivated on the *stronger lands* † of this, or perhaps any other district, they ought to be succeeded by WHEAT, or OATS, rather than BARLEY.

93.

VEGETABLE
ECONOMY.

OCTOBER 3. The barley of No. 1, had not ripened, perceptibly, for some weeks before the late sharp frosts: since which it has ripened daily. There are twice the number of ripe ears, now, there were a week ago: they are not only changed as to colour, but the corn is obviously plumper. Before the frosts, the heads seemed slender and puny; so much so, that I had consigned the whole to the *miller*: now I begin

* See also NORF. ECON. v. i. p. 237.

† On the lighter lands, on the Forest side of the district, good barley is got after turneps.

begin to hope that some of it may, this year of scarcity, be fit for the *maltster*.

It was a general observation, it seems, in this country, in the year 1782, (a wet backward summer) that the late ripe crops did not ripen until frost came : even wheat was cut in December.

How is this to be explained ? Frost, we scarcely can doubt, compresses the sapvessels of vegetables, and, probably, forces the sap out of them : back to the earth, it is generally supposed ; but, perhaps, the natural receptacles of the plants are first supplied.

It is observable that fruits ripen, leaves fall, lattermath shrinks—by frost.

94.

OCTOBER 3. It having always appeared to me incomprehensible, how a common farm labourer, who perhaps does not earn more than six or seven shillings a week, rears a large family, as many a one does, without any assistance,—I desired old George Barwell, who has brought up five or six sons and daughters, to clear up the mystery.

He

93.

VEGETABLE
ECONOMY.

LABOURER'S,

94.

LABOURERS.

He acknowledges that he has frequently been "hard put to it." He has sometimes barely had *bread* for his children: not a morsel for himself! having often made a dinner off *raw hog peas*! saying, that he has taken a handful of peas, and ate them with as much satisfaction as, in general, he has eaten better dinners: adding, that they agreed with him very well, and that he was as able to work upon them, as upon other food: closing his remarks with the trite maxim—breathed out with an involuntary sigh—"Ay, no man knows what he can do, till he's put to it."

Since his children have been grown up, and able to support themselves, the old man has saved, by the same industry and frugality which supported his family in his younger days, enough to support himself in his old age! What a credit to his species!

95.

MANURE.

OCTOBER 3. I have often wished for some luxuriant quickgrowing plant, which does not readily shed its seed, to sow upon dung heaps,

heaps, piles of compost, mold, &c.; in order to smother the seeding weeds, to shade and mellow the surface, and to turn in, to assist fermentation.

95.
MANURE.

Mr. ———, this summer, turned up a “ruck of soil;” on which there is now a thickset crop of TURNIPS!

Whether the seed was sown, or whether it was turned up with the mold; or for what purpose if sown, I know not, nor is it material; but that no plant is better calculated for the purpose than the TURNIP is sufficiently evident; nor any one, except RAPE, whose seed is more easily procured!

96.

OCTOBER 9. (See MIN. 40.) These lands, at harvest, were the best crop in the piece: the rest of which had either rain or frost, between the plowing and the sowing.

WHEAT
on
CLOVERLEY.

As a farther evidence of the propriety of sowing after the plow, Mr. ——— says that he makes a point of sowing, in the afternoon, what has been plowed in the morning, and that he has had great success with his wheat on “clover roots.”

OCTOBER

97.

97.

CALENDAR.

OCTOBER 15. See MIN. 23. From that time, I have been assiduous in registering the rural transactions of *this* district; not with respect to the INCLOSURES only, but to the COMMON FIELDS: catching from time to time, by incidental or intentional observation, the CURRENT BUSINESS OF FARMERS; thereby fixing not dates, only, but other facts in practice, which, without a CHRONOLOGIC REGISTER, might have escaped unnoticed.

The several articles of this JOURNAL I have from time to time, *posted*, or transferred, to their respective heads, in the SYSTEMATIC REGISTER; and, now, select such articles, as will serve to give a general idea of the business of each MONTH, in the INCLOSED TOWNSHIPS.

OCTOBER.

Continuing to break up, and manure,
oat stubble for wheat.

Continuing to sell fat stock.

Buying in store ewes.

Changing

Changing servants.
Paying Ladyday rents.
Thrashing feed wheat.
Sowing wheat : mostly sown this month.

97.

CALENDAR.

NOVEMBER.

Breaking up wheat stubble for barley.
Finishing fat cows, with preserved pasture, hay, and, perhaps, turnepsthrown on grassland.
Some hurdling off turneps with sheep.
Beginning to cut hedges.
Opening surface drains (a good time.)
Some few planting quick hedges.
Manuring young grasses and grassland.
Collecting fuel.

DECEMBER.

Thrashing, and carrying out corn.
Attending yard stock and store sheep.
Fattening, and beginning to kill, pigs.
Drying off cows.
Continuing to break up pinfallows.
Manuring pinfallow and grassland.
Plashing hedges.

JANUARY.

Continuing the works of last month.

Some

97.

CALENDAR.

Some stallfatting cows with hay and cut-meat.

Some breaking up turnep fallows, in open weather.

Some marling, in frost.

FEBRUARY.

Beginning to breakup turf for oats.

Attending to dairy cows, now calving.

Rearing the cow calves; fatting the bulls.

Attending store and fatting stock.

Beginning to look out for "barren beace."

MARCH.

Continuing to plow for oats.

Some continuing to break up turnep fallow for barley.

Crossing pinfallows.

Plashing and planting hedges.

Busy after lean cattle.

Attending ewes and lambs.

Beginning to sow oats.

APRIL.

Sowing oats.

Paying Michaelmas rents.

Crossing

Crossing and harrowing pinfallow.
Some sowing turnep ground with barley.
Continuing to buy barren cows.
Buying and selling incalvers.
Sowing barley on pinfallow.
Planting potatoes.
Stonepicking and spreading dung.

97.
CALENDAR.

MAY.

Sowing barley.
Some crossing turnep fallows.
Fetching lime.
Some underdraining (a bad time).
Continuing to attend spring fairs.
Beginning to make factor's cheese.
Weeding wheat.
Shearing sheep.
Selling fat lambs.

JUNE.

Some stirring and liming turnep fallow.
Weeding corn.
Some beginning to sow turneps.
Mowing clover.
Carrying out manure.
Beginning to mow grass.

JULY

97.

CALENDAR.

JULY.

Haymaking.
 Some sowing turneps.
 Selling forward cows.
 Some manuring grassland (a good time).

AUGUST.

Corn harvest.
 Putting bulls to heifers.
 Selling fat stock.
 Some breaking up stubble for turneps.
 All beginning to break up oat stubble
 for wheat.

SEPTEMBER.

Plowing and manuring oat stubble for
 wheat.
 Some mowing wheat stubble.
 Selling fat stock.
 Beginning to buy lean ewes.
 Beginning to sow wheat.

98.

COMMON
 FIELD
 HUSBANDRY.

OCTOBER 15. Those observations likewise
 enable me to make out a sketch of the com-
 MON FIELD HUSBANDRY of this district.

Half

Half a century ago, the district was principally open. Now it is mostly inclosed. In *this* quarter of it, there are only four townships that remain in any degree open : *Newton, Austrey, Shuttington, Edinghall*: and, in the Bosworth quarter, there are some three or four more.

98.
COMMON
FIELDS.

Each TOWNSHIP appears to have been laid out, originally, into *three arable fields*, with grassy balks, and “ley lands;” a *common meadow*; and a *common cow pasture* *.—The fallow field is a stinted *sheep walk* †. And *horses*, in summer, are teddered on the balks, &c. of the corn fields.

THE COURSE OF HUSBANDRY.

Fallow,
Wheat or barley,
Pulse or oats ‡.

Of

* REDMORE, in one of whose *bogs*, tradition says, KING RICHARD lost his life, is still a COMMON COW PASTURE.

† Those who do not keep sheep let their “comins:” one person, perhaps, renting the sheep feed of the entire township.

‡ In 1785, SUTTON AMBION and the adjoining field (the site of the “battle of Bosworth field”) were in WHEAT. Hence, if the present course of crops is of three hundred years standing, they were likewise in wheat, or in a state of wheat harvest, at the time of the battle.

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Q

98.

COMMON
FIELDS.

Of late years, CLOVER has been substituted, in some instances, in the place of beans * ; and, in others, TURNEPS have been sown on the fallow for barley ; the last, however, is a practice which has not gained an established footing ; being now nearly, or wholly, laid aside ; except in a very scarce year for fodder, as the present, when part of Newton field was sown with turneps.

FALLOW.

Break up, after barley sowing, late in the spring : of course a difficult operation : though the furrows, in this plowing, be thrown *downward* †.

The first stirring, in June, *upward*.

The second stirring (which slovens not unfrequently omit) in August ; sometimes *upward*, sometimes *down*.

Set the MANURE, generally, on the first or second plowing ; and in a long strawy state ; raw as it rises out of the dung yard : to appearance, a slovenly practice. Nevertheless, it

* The clover is mown twice the first year ; and fallowed the second.

† Ridges high ; but not equal in height to those of the vales of Gloucester and Evesham. See GLO. ECON.

it may have been, originally, founded in experience. The strawiness may serve to keep the fallow soil in an open, porous state; preventing its being run together by heavy rains; a principal danger, perhaps, incident to fallowfield lands. See MIN. 21.

98.

COMMON
FIELDS.

WHEAT.

The seed invariably plowed under: the ridges being gathered *upward* with the seed plowing.

The management in other respects the same or similar to that of wheat in INCLOSURES*.

BEANS.

Slit open the ridges of the wheat stubble, in winter, by two furrows thrown outward.

Begin plowing, *upward*, in February, or as soon as the weather will permit: and sow as soon as the season will permit.

If a favourable seed time offer in February, it is now become pretty generally the practice to sow on the stubble, and *plow the seed under* †. But if the early part of the season be unkind, the land is plowed, as the weather will permit,

Q 2

and

* See vol. i. Art. WHEAT.

† See vol. i. Art. BEANS.

98.

COMMON
FIELDS.

and the seed sown, as soon as the land will work, and *harrowed in*. All sown broadcast.

It is observable that, in the PRODUCE of the common fields, *wheat* far exceeds every other crop. It is true, the soil is fallowed and manured for wheat; but the *beans* and the *oats* follow immediately; and, of course, have a considerable share of the improvement. And all, perhaps, that can be drawn from this striking circumstance is, that WHEAT is the most PERMANENT of cultivated crops.

Upon the whole, it is evident to common observation, that the COMMON FIELD HUSBANDRY of this as well as of other districts, is INCONVENIENT and UNPRODUCTIVE; and it is a matter of some astonishment, that the best lands of the island should have been suffered to lie, so long as they have done, in such an UNPROFITABLE STATE.

99.

MARKETS.

OCTOBER 17. FASELEY FAIR (see MIN. 13.) a full fair of cattle: from eight hundred to a thousand head: most of them half fat: some few tolerable beef.

The

The sale extremely flat. The underfat "beace" were obliged to be sold; many of them at any price. Seven or eight pounds were asked for cows, which, if they had been fat,—as in a common year they probably might with the same *time* they have had this,—would have fetched twelve or fourteen pounds. Much beef was sold at twopence a pound: perhaps, for the half fat sort, twopence half-penny was a medial price; and much went out, unfold*.

99.

MARKETS.

100.

OCTOBER 17. In July 1784, I made, on a turnep fallow, a comparative experiment with BREEDON LIME (see vol. i. p. 199. and MIN. 2.

LIME.

The piece in general (No. 1.) was limed with about five quarters an acre. Part of one land had double that quantity: part of another, none.

The TURNIP crop received no obvious advantage from the lime.

But its effects on the BARLEY are evident. The part *not* limed is evidently the *worst* crop.

Q 3

Nearly

* See MIN. 67.

100.
LIME.

Nearly in the proportion, I apprehend, of four to three. In this case, therefore, the barley alone will nearly pay for the lime.

But, what is still more interesting, the part limed with ten quarters an acre is the best crop in the piece ! Therefore, the notion that a quantity of Brendon lime greater than five quarters an acre is ruinous to crops appears, by this experiment, to be entirely ill founded.

Upon foul pinfallow it may be injurious ; by encouraging (not “breeding”) couch : but, on a clean turnep fallow it has, in this instance, spent its strength on the crop *.

101.

LABOURERS.

OCTOBER 19. Of six labourers which I have had in employ today, two have a mile, one has two miles, and three have three miles, to walk home !

How inconvenient to live *far* from a village. Either second rate workmen must be put up with, or extraordinary wages given. For what man, who can get work and wages

at

* Nevertheless see MIN. 103.

at home, would voluntarily undertake the task of walking three miles to and from his work : itself half a dayswork.

101.

LABOURERS.

102.

OCTOBER 23. The evening before last, got harvest home !

HARVEST-
ING
BARLEY.

This being the most remarkable case, in HARVESTING, which has occurred to me, I have regularly set down the incidents as they passed, and now reduce them to a minute, that I may not lose the remembrance of any part of a transaction, which is, taken all in all, the most interesting one I have met with in my practice.

The harvesting of produce is the most serious employment of aration : for if a crop *fail*, through improper management or untoward seasons, the soil is not exhausted, but remains in strength for a future season : but when once a crop is *obtained*, the soil has, of course, undergone a proportional degree of exhaustion, and any injury received by a RIPENED CROP, whether of grain or herbage, becomes a dead loss, which cannot be retrieved;

Q 4

Therefore,

102.
HARVEST-
ING
BARLEY.

Therefore, every thing which tends to reduce the HARVESTING of CROPS to a degree of CERTAINTY is of the highest importance to the ARABLE FARMER *.

Wednesday, 21st September. Began to mow and single-sheave No. 1. See MIN. 90.

Thursday and Friday, rainy days.

Sunday 25. A deluge of rain, near two inches.—The country floated.

Tuesday. A fine morning:—some flying showers in the afternoon. Continued mowing whenever the corn was dry.

Wednesday:—a hoar frost; with some flying showers.

Thursday:—hoar frost and fine, but *still*, day.

The sheaves mown *under the south hedge* the 21st, on which the sun cannot shine till almost noon, and which have been wholly deprived of the wind, are beginning to grow!

What intolerable pests are HIGH HEDGES about CORN FIELDS! (See MIN. 160.)

The

* Nevertheless, MINUTIAL DETAILS, of the transactions of husbandry, may be *unentertaining* to the majority of readers. I will therefore select, for publication, such particulars only, as I conceive to be in some degree *preceptive*, and such others as tend to connect the detail, so as to render it, if possible, *interesting* to those who read for instruction.

The sheaves which stand away from the *hedges*, though they were on Monday morning as wet, under the bands, as a sponge dipt in water, are so far recovered, as, I hope, to be entirely out of danger. I confess I began to lose my confidence; but by Tuesday night their skirts and their heads were as dry as if they had had no rain! At this time of the year the sun's rays are too faint to be effective—the wind, only, can be depended upon.

Friday 30. Let the morning be ever so fine, the dews or the frosts have uniformly kept the corn wet till noon, and the flying showers have broken into the afternoon's work; so that even with two sets I cannot get much more done than an acre a day; and I can no longer, with conveniency, make more than one full set: beside, the changing of servants is at hand. There are still six or seven acres to mow: taking the chance of the weather, at least a fortnight's work: the highest driest part of the field is the worst and the latest barley: therefore, began to mow this part into swaths, for *fodder*! separating the moister, flatter, better parts to be set up in sheaves, and harvested as *corn*.

Saturday

102.

HARVEST-
ING
BARLEY.

102.

HARVEST-
ING
BARLEY.

Saturday 1st October :—the afternoon fine : continued cutting both swaths and sheaves.

Mr. — of — mowed a field of barley yesterday, and, today, I saw women shaking the swaths abroad—tedding them—as hay !

By way of experiment, TEDDED two patches in the middle of the swaths mown today. Mr. —'s idea is, that if the weather prove fine, the barley will sooner make (all his nearly as green as grass) abroad than in swaths ; and that if rain should happen, it will lie “cooler,” spread thin over the ground, than it would in swath ; and, consequently, be less liable to grow.

Saturday 8th. We have not been able to mow a swath, since last Saturday ! rain every day this week :—the standing corn never dry, until today.

Finished mowing, and began to turn the swaths mown last Friday and Saturday :—but a deluging shower stopt us !

Sunday 9.—Intended to have finished turning the swaths in the afternoon ; but a shower about one o'clock frustrated my intentions.

Monday 10.—The SWATHS, whether turned or not, are growing ! and the TEDDED, if any thing, still worse ; but the rain coming with wind,

wind, and there being intervals of fair weather, the SHEAVES are nearly as dry as if not a drop of rain had fallen ! Even the first cutting, which is now nearly weathered, which has been pulled about by pigs, and torn to pieces by a whirlwind, is still perfectly sound ; —some few under the *hedges* excepted.

In the afternoon, turned the swaths and set up the fallen sheaves.

Tuesday 11.—A fine day.—*Twisted* down the first cutting, exposing the butts and the leeward sides to the wind ; and reversed the sides of the second and third cuttings—(turning the sheaves half round, and setting them on fresh dry ground)—and, in the evening, set up those thrown down,—*all with forks*,—which do less mischief, than the hands, to the heads of barley, are more careful to the workmen, and, with a little practice, are as ready as the hand ; though, in setting up, sometimes not so effective : when this is the case, it is necessary that the hand should assist.

Not one sprouted ear to be found under the sheaves ! not even round the skirts of the first cutting ;—which, notwithstanding the disadvantages it has had, is, this evening, in better order than three fourths of the barley which

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HARVEST.
ING
BARLEY.

102.
HARVEST-
ING
BARLEY.

which has been carried this year ; excepting some dampness immediately under the bands : one fine day to open them in, and air this part, would completely cure them.

Had this patch been mown into swath, it must, in the ordinary course of things, have received excessive injury ;—the straw spoilt as fodder, and the grain but sorry hog-feed : whereas now I apprehend there is from three to four quarters of bright sound maltable barley, and one and a half load of bright, sweet, excellent fodder an acre. A difference perhaps, considering the apparent scarcity of fodder, and the present high price of barley (two guineas a quarter), of not less than four or five guineas an acre !

Friday 14. Wednesday and yesterday a deluge of rain fell !—not less I apprehend than from two to three inches has fallen : it poured down as through a sieve ;—though windy all the time.

Today, a brisk wind, with intervals of sun. Turned the *SWATHS*. All their undersides very much grewed : some of the ears quite *green* !

The *SHEAVES*, under the *bedges*, also grown ; but, even there, not equal to the swaths,
though

though mown so much longer : those, from under the hedges, which were thrown down on Tuesday, are much beaten down by the wind and rain, and have here and there a growed ear : but those which have not been broken by moving, and which have not yet lost their stiffness, are not sixpence worse for the rain !

Had that which now lies in swath (on the highest openest part of the close) been set up in sheaves, the difference, I am clear, would not have been less than three or four guineas an acre.

It is remarkable how the corn has filled, and ripened, within the last fortnight : this part, which I had considered as being little better than fodder, is now full of bold corn ! Mr. — of —, who came to look at the “ new scheme,” said it was the best crop of barley he had seen this year : and in truth it is, *even now*, worth more than most of the crops which were sown early, and came away at the time of sowing.

Set up three sheaves from the swaths ; fopping wet, as they were before turning.

Also put some into SHEAF-PIECES (small straight wads or cocks the size of sheaves) with a fork.

Yesterday,

102.
HARVEST-
ING
BARLEY.

102.
HARVEST-
ING
BARLEY.

Yesterday, in a fair hour, set up the fallen sheaves, and today repeated this necessary but not tedious operation. Also re-tied some of the loosest of the first cutting, and reversed all the rest,—with forks;—giving each a shake, or two, according to their degrees of looseness, so as to draw the band a little upward, and thereby let the air into the only part in which it is wanted.

Near the *hedges*, there are some few grown ears under the SHEAVES; but away from those destructive nuisances it would be difficult to find one in the whole field.

Hacked down the offending hedge!

But to what purpose? The entire inclosure is a bed of mortar! and were the barley in order, we could not come upon the land to carry it off!

However, today's brisk wind has done its part towards drinking up the surface wet, and has fully recovered every part of the SHEAVES; except under the bands, where all of them, this evening, still remain damp, and some of them wet: the SWATHS still wet, and, I am afraid, still growing.

The patches REDDED were, in the morning, in a lather—quite soapy! But I do not see.

see that it is now much worse grown than the swaths: the fodder, however, seems to be in a worse state.

Saturday 15.—At length, two fair days together! Opened the first and part of the second day's cutting; laying the barley in *swaths*, with its ears to the sun and wind, across the ridges; leaving intervals in the furrows (in some of which, yesterday, water lodged!); carefully breaking every lump and wet lock, and separating the growed and wettest parts from the rest; laying them, by way of distinction, lengthway between the swaths. Untied the bands;—if growed laid them with the growed;—if found upon the rows. About the twentieth part separated; half of which may be sprouted.

Opened about three acres in this manner,—in a square piece, away from the hedges; being anxious to secure this part.

In the afternoon, formed the rows into Kentish cocks, reversing the butts, which now became exposed to the sun and wind.

At two o'clock the whole was in high order; in such a state, perhaps, as no barley has been in, this year; except some little that was
harvested

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HARVEST-
ING
BARLEY.

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HARVEST-
ING
BARLEY.

harvested before the rains set in : the fodder sweet and bright, and the clover and raygrafs still green, though thoroughly dry ! and the corn as good a colour (if my eyes and recollection do not fail me) as it was the day it was cut !

But the question was, how is it to be got off the ground, without tearing to piece-meal the land which now lies beautifully ?

An expedient struck me.—In the middle of the piece cocked, set out a bottom three yards by four.—A sledge load of the guilty thorns, and a sledge load of rubbish straw, made an excellent bed. On this laid the barley ;—four men fetching it in, with forks, or in their arms (preserving the wads entire) faster than a good hand could rick it,—until the ground was cleared forty, fifty, or sixty yards, every way round the rick. The corner and ends of the patch were then fetcht in with a sledge : two men and two horses bringing it in, as fast as a man could pitch it upon the rick.

Thus, three men and two horses got it together as fast, in this way, as two pitchers, two loaders (if the wads had been preserved whole

whole) two drivers between, one unloader, and one helper upon the rick—in all eight men, and nine or ten horses—would have done to have carried it to the rickyard (just a mile's distance); besides preserving the young seeds from destruction, and at the same time placing the barley, in a much better situation, than it would be in one large rick; which, it might be a week, or it might be a month, before we could have finally topped up. Add to this the shortness of the days, the uncertainty of the weather, and the scarcity of hands.

Had the SLEDGE (admirable implement!) been constructed for this purpose, alone, it could not have answered it better:—drew the load to within a few yards of the side of the rick, pulled out the standers next to the rick, overturned the sledge, and drove away for another load!

Carried, I apprehend, a middling waggon load at thrice. Another sledge, another horse, and another man, would have kept two pitchers and two rickers fully employed. What an expeditious way of securing a crop!

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HARVEST-
ING
BARLEY.

Sunday 16.—After a thick fog went off, the sun broke out very hot (64 or 5°) not a breath of wind:—the sheaves under the western *hedge*, as well as some of those which had stood under the fallen one, growing as in a malt house!

Got four or five men to work, to pull off the bands as they stood (setting a foot on each side of the skirts), pulling open the heads of the sheaves, and letting in as much air as possible, so as to keep the disbanded sheaves upon their butts. Also disbanded, in the same manner, the whole of the third cutting (away from the hedges) which were damp in the bandplaces, though not in the least growed. Also drew up the bands of the remainder of the sheaves, leaving them loose round their heads (lest the whole might be caught in a squall), pulling open the bandplaces, so as to let the air into the *throats* of the sheaves; thereby forwarding them for carrying, without lessening, in any great degree, their security.

Monday 17.—A thick fog hung on 'till one! when a hot sun broke out:—opened and spread the disbanded sheaves;—almost dry as they stood! except the butts. The effect
beyond

beyond expectation. Nevertheless, the sun dipping about three, and not a breath of wind, I did not think them in sufficient order for carrying!

How teasing! all abroad! What was to be done? The barometer $3\frac{1}{2}^{\circ}$ dry—the wind creeping round towards the north, and appearances in favour of fair weather.—I think it is three to one we shall have no rain before tomorrow night: therefore cocked the good (in even Kentish cocks) and let the growed under the hedges take its chance.

Observations. The SHEAF PIECES are evidently drier than the SWATHS. Caught up one of them, and, grasping it hard with both hands near the top, set it upon its butts, with the damp underside to the sun; striking it down, and then, loosing one hand, spread its skirts, as if it had been a bound sheaf: it stood perfectly well! (no wind.)

Set up about half an acre of the worst of the swaths, in this way; such as were not already broken into sheaf-pieces, gathered them with the hands, as if to lay into band;—punching them down smartly, so as to open the woolly wet locks, formed of clover and

R 2 chickweed,

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chickweed, at the butts of the straw, which are so caked together, that, I apprehend, a week's fine weather will not *make* them, sufficiently in their present state.

What a misfortune that these four or five acres were not set up after the sith! In what a desirable state they would now have been;—at a distance from hedges, and in the highest most airy part of the field! Yet, notwithstanding those advantages, they are, in swath, not only much injured by growing, but even the found corn is the colour of the soil it lies upon!

Tuesday 18.—A charming day! Barometer 4^o h. — Hygrometer 5^o d.—Thermometer 52^o. Wind due north.

Hand-turned two or three acres of the remaining worst of the swaths;—teazing to pieces the cakes of chickweed and clover, as wool or oakum is teazed! carefully opening every lump;—a somewhat, though not exceedingly, tedious job. But, without this or some other expedient, *these swaths* might have lain a month of fine weather, before they would have been free from wet, yellow, half-rotten, stinking woolly locks.

Turned,

Turned, and lightened up with the arms, the cocks made yesterday; and, in the afternoon, topt up the rick,—with bright found good barley,—put together in charming order;—in much better order than any I have carried this year, or which it is highly probable has been carried this year; except some little which was got before the rainy weather set in;—and this, notwithstanding it has been cut near a month; three weeks of which has been almost incessantly rainy weather.

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Stirred and lightened, with a fork, the *scaths* of disbanded *sheaves*, under the hedges; partially turning them *in file*: a ready and good job.

In the evening, cocked them and got them (as before) in good order, as to dryness, upon another bottom, three yards by four.

Yesterday and this morning, raked the part carried on Saturday, and, as the rakings got dry, made them into cocks.

In RAKING, left the rakings in rows, and after disengaging the rake, put the points of the teeth partially under the rakefull, and set it on edge; by which means rakings, drawn together in dew, will dry as much in one hour,

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as they would in four and twenty left flat upon the ground.

Wednesday 19. Barometer $5\frac{1}{2}^{\circ}$ heavy.—Hygrometer 5° dry. Wind north: no dew! The canopy, in the morning, grey: about nine, the sun broke partially through,—with every appearance of an extraordinarily fine day; but he could not keep his advantage;—the dappled grey-goose sky returned, and continued through the day: nevertheless, and though but little wind, the barley dried rapidly.—Hand-turned and opened the remainder of the swaths, and lightened those opened yesterday.

Spread the SHEAF PIECES which were set up without bands (and most of which the squall of Monday night had lain low). The butts green; but the tops in much better order than the swaths: had rain fallen, and the wind been moderate, the advantage would have been very considerable.

Opened the three SHEAVES which were tied, and set up from the swaths when fopping wet, on Friday morning. They are still damp under the bands; but entirely out of danger: the heads dry, and the butts almost dry.

This

This shows that even green and weedy barley may, with safety, be set up in SINGLE SHEAVES, when dripping wet.

But, in this case, the sheaves should be made *small*; some which were mown the last day, in the part sheaved, but which were not set up until the swaths (there mown outward) had had some rain upon them, and which were tied up in *large* sheaves while still damp, opened out badly;—soft, and a little grown.

Perhaps, in setting up wet swaths, make small sheaves;—tie them low at first; and, after they are a little dried and stiffened, draw up the bands, and pull open the bandplaces; it being evident, from this year's practice, that there is no danger but in the bandplaces; and this seems to be the easiest way of curing them. If additional wet fall, still pull them higher, letting them hang loose on the tops, as wreaths; or, if need require it, shift them low again.

Levelled the rick—laid on some boughs—(by way of distinguishing) and got on the remainder of the sheaves opened yesterday, all found and in high order *.

R 4 Re-levelled

* See MIN. 117.

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Re-levelled the rick ;—laid on some more thorns ;—and topt it up with bands and rakings.

Yesterday and today the surface having got somewhat firm, carried with a broadwheeled CART as well as the SLEDGE. Two men, with the SLEDGE, brought in the barley nearly twice as fast as two did with the cart, and preserved the wads infinitely better.—Excellent implement !

Thursday 20. Strong hoar frost ;—barometer sinking a little :—hygrometer *up* a good deal :—wind still north :—a bright fine morning : nevertheless, the frost, and its consequent dew, kept the swaths wet till near twelve o'clock ! when the sun became obscured by large clouds, with little or no wind ! What a task to harvest in October ?

Turned the swaths, before noon : but, although they have been mown near three weeks, and have had near one week of fine weather upon them, the butts, notwithstanding the extraordinary pains they have had bestowed upon them, are still full of undermade clover, and unwithered chickweed (a vile weed in a wet harvest), some green, some yellow,

low, and all together cold and “thone;” though none of it *wet*.

Another embarrassing predicament ! What was to be done ? I had twelve men in the field—(collected with difficulty from all quarters);—half of whom I had worked out of employment :—the barometer getting light—the hygrometer wavering—the canopy becoming loaded with heavy clouds;—the men eager for the attack : for the barley was in the true Midland order,—in the very condition they have been used to.

The word was given for carrying ;—and they fell to with a degree of eagerness I had not before had the pleasure of observing, in this quarter of the kingdom : the only alleviation I had for seeing barley carried, which I knew required a full fine day, more, to fit it for carrying.

In about three hours they made another little rick of six or seven loads ; carrying, as before, first with the arms and forks, and afterwards with the sledge and cart, employing two rickers.

What may be the result I know not ; but I never before carried barley in such condition.—The only circumstances that can save it

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it from damage are the smallness of the rick; the exposing of the butts on the outside, and the airiness of the situation.

Friday 21. Barometer $4\frac{1}{2}^{\circ}$ h.—not a ray of sun—nor a breath of wind—the hygrometer in the open air at par—and a little barley, with the rakings which were last night left in the field, likewise at par:—not perceptibly drier, this evening, than they were last! Got them upon two waggons (by means of the sledge and cart), and, in the dusk, brought HARVEST-HOME !!! *

From all this experience, accompanied by an unusually close attention, something, surely, may be drawn, bordering, at least, upon GENERAL RULES. The following are what occur to me.

If

* *October 31.* The weather continued gloomy and close until Tuesday 25,—a fine bright day, and the only harvest day we have had: on Tuesday night snow and ice a considerable thickness—on Wednesday a heavy shower of snow—at midnight two or three inches of snow—Thursday and ever since, cold, bleak, pinching weather!

The first ricklet settled but did not heat—the second neither heated nor settled—the last did both, but neither to excess; and I am in hopes it will turn out better barley than I at first expected,

If the days be long and the weather settled, mow barley into *SWATH*, and harvest it agreeably to the practice of the country it grows in.

If either the days be short or the weather unsettled, set it up in *SINGLE SHEAVES*.

But (more especially in this case) if the *hedges* be high and the situation flat, first cut down the hedges, and then cut the barley.

If through late sowing, or an untowardness of season, barley do not *RIPEN* before the middle of September, let it stand until some smart *FROSTS* have performed that, which the sun in September is unable to accomplish: and add to this, the season is frequently more settled, in the beginning of October, than about the equinox.

If swaths, mown during an appearance of fine weather, be nevertheless caught in rain, set them up in *SHEAF PIECES*, the first fair opportunity; and, as soon as the tops are a little dried, and leisure will permit, put bands round them; or, if settled fair weather return, return them again into swaths, as soon as the ground is perfectly dry.

With respect to the treatment of *SINGLE SHEAVES*,—if the barley be green, grassy, or weedy,

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weedy, they should have at least a fortnight of FIELDROOM ;—observing that when one side is sufficiently weathered, to turn the opposite towards the sun.

If, when they are sufficiently weathered, the bandplaces be thoroughly cured and sufficiently dry,—throw them down to air the butts, and carry without further trouble.

If the butts be clean, and forwarder than the bandplaces, bind in the common banding place, and either open the heads as they lie upon the ground, or set them up in shocks until thoroughly cured.

If the sheaves be sufficiently weathered, but damp both in the butts and bandplaces, and a fair opportunity is wanted to be embraced, open them in the morning, and carry in the afternoon ; but, if one day be not sufficient to get them into order, disband them one day and spread them open the next ; or, if the weather be suspicious, pull up the bands, rend open the bandplaces, and let them remain one or more days, until one fine day will fit them for the rick.

If the soil get rotten, the days be short, and hands scarce, or the weather be such that the
barley

barley cannot be got into sufficient order,—make SMALL RICKS in the FIELD ; and embrace a clear frosty day, in winter, for getting them into the barn.

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LIME.

OCTOBER 31. A neighbouring farmer relates several instances strongly corroborating the idea that BREEDON LIME *encourages* twitch (he is clearly of opinion that it *breeds* it).

A relation of his, on the banks of the Trent, bought a boat load of this lime, and set it on for wheat, the same thickness he had usually set on Tickenall : namely, two loads an acre. The consequence was, his wheat crop was spoilt ! the land a bed of twitch ! And a person in this neighbourhood, he says, spoilt his wheat crop, by the same means. He himself, too, can see, in a cold springy grass ground, every place where the cart stooped, in spreading Breedon lime upon this piece, some years ago ! adding, that he will never set another heap of this lime in the area of a close : for, wherever he has made his heaps, the soil produces, thenceforward, a bed of twitch *.

On

* But even this is not the case in No. 1. See MIN. 100.

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On the contrary, he has repeatedly observed, that wherever a "ruck" of TICKEN-ALL or WALSAL LIME has lain, there the place, on being laid down to grafs, becomes covered with a mat of "honeysuckle clover."

These are curious facts : for such I apprehend them to be ; not only from the manner in which they were related ; but from corroborating evidences : indeed, to part of the assertion, I can myself give testimony. I have seen a hillstead of Breedon lime as thickly set with couchgrafs, as a brush is with hair : much thicker than I have ever seen it in any other situation.

Interesting, however, as these circumstances appear to be, in the nature of manures, and the vegetable economy, I see no useful inference that can be drawn from them ; except that Breedon lime is unfit to be set on land foul with couchgrafs ; but that, for the lands of this country, properly cleaned, it appears to be a proper and a powerful manure.

NOVEMBER

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104.

NOVEMBER 1. (See MIN. 70.) It seems to be universally agreed, that so general a loss of horses, by the STAGGERS, was never before sustained, in this country.

STAGGERS
in
HORSES.

The "Walsal medicine," by which many have been thought to be cured, has at length miscarried. But that of a farmer, near Stafford, has not yet failed: it is even said to have succeeded after the fit has been come on. Mr. LEE of Coton Park, who has used it, and, he believes, with success, says it contains ASSAFOETIDA. A carrier, after having lost twenty or thirty horses, has saved (or believes that he has saved) forty or fifty by the "Stafford medicine." But see MIN. 116.

105.

NOVEMBER 2. Conversing with Mr. — about his sharhogs (see MIN. 15.), I asked him by what means he brought such young sheep to so high a state of fatness (about eighteen or nineteen months old—thick fast fat!). He answered, in his way, "I don't know; they were

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were lambed fat, and have been fat ever since :” adding, that they have been kept as well as he could keep them. And it seems to be generally understood, here, that it is not a difficult matter to keep young sheep up ; but very difficult, if once let down, to get them fat again, until they have acquired some age.

It is also understood, that young sheep weigh well for their size ; and that such as have never had a check, prove well on the inside !

Nothing weighs so heavy, for its size, as a *running calf* (see NORF. ECON.) : and it was observed, that sharhogs weigh in a similar manner. They must be, to those who are in a good breed, have plenty of grass, and a sufficiency of winter keep, a most profitable species of stock.

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UNDER-
DRAINING.

NOVEMBER 6. Yesterday, finished my first essay in UNDERDRAINING ; here, provincially, “ SOUGHING.”

The principal part of this farm lies on a cool moist subsoil. Some parts of it are evidently

dently "wallspringy," and will probably pay for foughing.

Last year, I had too much to engage my attention, aboveground, to think of seeking employment under it. But having, now, pretty well subdued the weeds, and brought the surface waters under subjection; I have thought this autumn the proper time to attack the waters beneath the surface.

The worst piece on the farm, with respect to the DEFECTIVENESS of SUBSOIL, is No. 9. The lower side of No. 7. is cold and rushy; producing many of the aquatic tribe of plants: there are also a few "gouty places" in the meadows: all of which will, probably, pay highly for foughing. But the rest of the farm (some small patches perhaps excepted) lies tolerably sound and dry; and it may be a moot point whether it would, or would not, repay the expences of underdraining.

The parts affected in No. 9. have been very obvious. The wheat stubble upon them was a mat of couch: evidently worse than the founder parts (see MIN. 18.). At the setting in of the dry weather, the fallow being then got to pieces, the springy parts were not less obvious: remaining black and moist, after

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the rest of the piece had become dry and dusty; the moist parts having the appearance of the shadows of clouds on the surface*. They were likewise evident in the barley crop; both at the time of coming up, and on the ripening of the crop.

Thus, I gained a strong general idea of their situation; but, being otherways busily engaged, I did not identify them particularly, as I might and ought to have done, by stakes or any other permanent marks.

October 20.—Old SAMUEL of FAZELEY (see vol. i. p. 189.) began the operation.

Having shown him, in a general way, the parts affected, and given him the ditch of plantation A. (sunk in some measure for the purpose) for his main drain, I left him to trace his own lines.

His only guide was the “willoweed”—(*polygonum pensylvanicum*—the pale persicaria) and his only level the eye: he never made use of any other!

Beginning on the upper side of the piece, he set out his first “gutter,” or trench, fifty-five

* And, what is extraordinary, these watery parts sunk like a pool recently dried up; having the exact mud flavour!

five yards long, and fifteen inches wide; giving it such a descent as the eye could not well be deceived in.

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This trench he sunk "six diggings"—of about five inches each; making it thirty inches deep; and contracting it to four inches and a half at the bottom: in this instance, "hitting the springs"—lancing the VEINS OF SUBTERRANEAN WATER—with great judgement.

In filling in this trench, with stones (pebbles picked off plowed grounds—provincially "bowlders"), he began, at the upper end, with a course about five or six inches thick; in order that the water, which kept trickling along the bottom, might not be stopped and fouled, "beginning at the top bringing down clean water;" and, having reached the lower end, returned with another course; making the two about eighteen inches deep; each foot in length taking about a cubical foot of stones.

The mouth he formed with four bricks, laid in clay, and backed by the largest of the pebbles; leaving a pipe, four and a half inches square.

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The surface of the stones being levelled, they were covered with whole spits or clods of the stiffest of the clay, or strong clayey loam, which rose out of the trench; chopping and treading them down, close and tight, upon the stones; next, filling up the trench, level, with loose mold; and, on this, placing the first spits, or turf of young grasses; finally spreading the remaining mold thin over the adjoining surface.

The cost of these fiftyfive yards stands thus:

Opening the trench—three days at	18 <i>s</i> .	—	—	4	6
Filling in about	—	—	—	2	3
Four loads of pebbles	—	—	—	4	0
Carriage of these	—	—	—	6	0
Together	—	—	—	16	9

or near fourpence a yard.

October 25. Began a second trench, thirty yards below the first.

Observations. The proper distance between the cuts depends upon the nature of the subsoil. In this country, it is found that drains will draw off the superfluous water of some ground, at twenty yards distance from each

each other, of others, at not more than ten yards; fifteen or sixteen yards being esteemed a mean distance. Therefore, this drain was set out at thirty yards from the former, not more to reach a well known part affected, than in order that, if these two should not be found sufficiently effective, another may, hereafter, be run up between them.

In setting out this trench, the workman extended it a landwidth farther than the other; and, from a knowledge of the ground, as well as from the superficial appearance of the next land—the soil and the herbage appearing comparatively weak and spiritless—I extended it another landwidth, still farther: in all seventyseven yards.

This trench required to be sunk deeper than the first (the veins lying deeper); namely, “seven diggings;” making it three feet deep, and eighteen inches wide at the top.

The subsoil at the lower end of this cut proved to be a middle loam, without much intermixture of sand (among which chiefly the water lodges); nevertheless, even there, some water appeared. That of the last land, but one, a stiff retentive clay, without any

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water. But that of the last land proved a mere grout. A very quicksand. With an abundance of water !

Observations. How much circumspection is requisite in this operation ! And how requisite it is, when an opportunity offers, to identify the diseased parts, by stakes, or other permanent marks,

In filling this trench, the rotten sandy part was bottomed with wood (oak faggots) to prevent the grout from boiling up among the stones, and thereby choaking the fough. Upon this brush wood, stones were laid, as before, eighteen inches deep, and, upon these, wheat straw, about an inch thick : there not arising, from this trench, stiff clay enough to cover with ; and to cover with looser loam is dangerous ; as it is liable to be washed down among the stones, by heavy rains ; by this means choaking the fough.

This drain cost, on the foregoing calculation, near sixpence a yard.

It is observable, that, in the case under notice, the stones were upon the premises
(hayng

(having been formerly picked off the land), and the carriage was done at a leisure time.

It is likewise observable, that, where it so happens (as it may frequently) that stones are picked off the land to be drained, the cost of them may be said to be nothing; as the carriage, which otherwife would have been requisite, is lessened by their being used on the land. In this case, therefore, the hand labour is the whole expence: which, in the first instance, was threehalfpence, in the latter twopence halfpenny, a yard.

Hence, in a country, where it is expedient to pick stones off the land, it becomes necessary to common prudence, to drain (if draining be required) where stones are already picked, or to pick them (if expedient) where draining is required.

November 1. Began to "fough," in the meadows, some "gouty places"—marked by a rough tumid surface, covered with rushes, other aquatics, and coarse "four" grasses.

In this case, the parts affected being obvious, the workman was left to perform his

S 4

operation

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operation in his own way; which was that of directing his "gutter" to the *upper side* of the diseased part; keeping, however, somewhat below the *margin*.

Observations. I am of opinion, however, that if the trenches had been kept still lower, the drains would have been more effectual; at least more certainly so. The matter of a tumour on the surface of the earth, is, like that of a tumour in the animal body, lodged near the *center*. The *margins* are mere effects, and may spread much wider than the cause, which may lie in a small compass; and after having attended closely to this instance of practice, it strikes me, forcibly, that all underdrains should be run up directly into the center of the part affected*.

This

* 1789. A person of Warwickshire has lately made what is spoken of as a discovery in the art of underdraining; by bringing the water to the surface, or to the bottom of a fough, when this does not happen to be deep enough to reach it, by means of a *boring tool*.

On the sides of steep hills, this expedient may sometimes be useful (as lessening in some cases the expence of the trench), in relieving the land which lies *above* it. But, in ordinary situations, its effect, I conceive, cannot be great; as, in the nature of fluids, it cannot

This experienced and intelligent workman relates some remarkable *cases* in under-draining: two or three of which may be worth preserving.

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He cautiously avoids, if possible, coming within reach of the roots of a tree; especially the willow and the poplar; whose roots he has known to choak up a fough, on the side of a hill, so effectually in a few years, that the water has broke out at the surface, in the manner of a spring.

In Worcesterfhire, in cutting through a hanging bog, he broke in upon a deep quagmire, which he could not fathom with a pole eight or ten feet long; the matter boiling up so fast upon him that he was obliged to let the trench lie open, some time, to spend itself; finally exhausting it by scoops. The flow of matter having entirely subsided, he bedded the bottom with heath, trodden firmly down; forming the drain, in this case, with iron-forge cinders; which he considers as the best material of foughing.

He

cannot raise the water one hairsbreadth higher than the bottom of the drain; and, of course, the land immediately on either side of it, would lie as dry with-
out, as with, a hole in the bottom of the fough.

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He mentions a case, in which he "quartered" a large piece of ground, at every fourteen feet : namely, cut it into panes or chequers, by parallel lines fourteen feet apart ! But having sunk "wells" in the centers of some of the panes, and finding that even this was not effectual, he ran fresh drains, diagonally, across such of them as he thought required it, and by this means drained all his wells : an effectual, but costly operation.

The idea of the *wells* is a good one : it is highly probable, however, that, notwithstanding drains, recently made, may not lay every part dry, immediately ; yet, in process of time, their draught may be extended. And this principle holds good generally. For, although recent drains may not take immediate effect ; yet, by a continuance of draught, the *veins*, or natural channels, which conduct the water to the drains, may, in the nature of fluids acting on loose matter, not only be *enlarged*, but *extended*.

GENERAL OBSERVATIONS. Underdraining is not that formidable business I have hitherto considered it. One old man has, in fourteen
days,

days, for which I have paid him a guinea, done away (I hope) the *principal* defects of subsoil of this farm. Even supposing the stones to have been purchased, and the carriage of them hired, the whole expence would not have amounted to more than five pounds.

In this way, I am clearly of opinion, every estate should be drained: beginning with the parts most affected; no matter how they are scattered.

Two main advantages are had through this mode of procedure. The greatest nuisances are done away the most immediately; and no labour is lost.

Whereas, by the usual method of cutting one field to piecemeal, while others, equally affected, remain without any relief, many disadvantages arise. The expence generally becomes enormous; many unnecessary cuts being made. Stones are to be drawn, from every distant part, to this one spot; which is, in consequence, cut up and injured by that labour which another is injured for want of.

When the *great* and *evident* infirmities are removed, those which are smaller become
more

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more perceptible; while, probably, many parts which, at first sight, required, even in the eye of a master in the art, to have labour and materials bestowed upon them, will, by the RADICAL CAUSE of disorder being removed, be found, in a short time, to be cured without farther expence.

The one is proceeding with CERTAINTY, the other with a degree of RISK, and, of course, with a degree of indecision and embarrassment, in the execution: beside the loss of money, by doing that which was not necessary; and the loss of time, by delaying the most essential part of the improvement.

Upon the whole we may venture to say, that UNDERDRAINING, properly conducted, and in situations where the subsoil is partially too retentive, ranks among the first of rural improvements: it being a fact incontrovertible, that, in the productiveness of lands, more depends on the nature of the SUBSOIL, than on the intrinsic quality of the SURFACE MOLD.

NOVEMBER

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107.

* NOVEMBER 8. SUTTON FAIR. About six hundred and fifty cattle, and three thousand sheep. The "beace" chiefly half fat: five hundred of them, at least, barely fit for turneps: yet most of them sold, as "fat."

MARKETS.

This is the last autumn fair, of any magnitude, in the country.

In attending the fairs of this district, during the two last years, I have observed a spirit of **JOBING**, or buying and selling unnecessarily, among the farmers of this district, which I have not seen in any other, and which has, more than once, become a subject of reflection.

JOBING.

If a Midland farmer go to a fair, he is ashamed to return without having done some "business:" he must either buy or sell, or he loses his credit as a marketman. Hence, probably, the quantity of business done at the Midland fairs, compared with those of other districts; where one third, or perhaps half, the stock is frequently driven out unsold: while, here, the whole fair may be said to be generally transferred.

There

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JOBBER.

There are cases in which a TRANSFER OF STOCK from *farmer to farmer* is eligible : as from *breeder to grazier* or *dairyman*. But the spirit of dealing, by way of doing business, and a spirit of SPECULATION, or gambling, are one and the same thing. A good judge, like a good player, will profit by it : but those who have less judgement must, on a certainty, be losers.

This evil spirit, however, though prevalent among Midland farmers, does not possess the whole. The man who has, perhaps, made more money, by farming, than any other man in *this* neighbourhood, pursued a very different plan of management. He reared his own cows, dairied them, and, perhaps, fattened them himself. His sheep the same : his chief dealings, in livestock, being with the *butcher*.

A mere GRAZIER must frequent fairs. But a GENERAL FARMER, who has crops and rearing stock to look after, can seldom leave home without loss.

Beside this general passion for JOBBER, among Midland farmers, there are many of them who make a distinct branch of business of it. Not as DROVERS, who drive from district

trict to district, but merely as DEALERS, within the district; purchasing of one farmer, and selling to another.

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JOBBERING.

This is not only a useless, but a pernicious class of men: encreasing the price of stock at all times; and, in times of scarcity, monopolizing that which ought to circulate among farmers in general; thereby encreasing the apparent scarcity, and of course the price.

During the late rising markets (in 1785 and 1786) sheep, which were on sale, were almost wholly in the hands of jobbers: many of whom got much money by their dealings. But whatever *they* got, was of course lost, either by the *breeder* or the *grazier*, or was a tax on the *consumer*.

The breeder stands the best chance of profiting by this class of men; inasmuch as they encrease the *number of buyers*: so that the graziers, or the consumers, lose, in a twofold way, by their interference.

The most natural mode, the simplest shortest way (practicable) of supplying the community, with what is termed animal food, is that of one man rearing and fattening his own stock for the butcher. The next, that of one man rearing, another fattening, and a third slaughtering.

107.
JOBBERING.

tering. In some few cases, an intermediate grower of stock may be useful; but this fourth man may generally be considered as unnecessary; and a farther intrusion (unless when a transfer from district to district is requisite) might be considered as an act of forestalling, and those who practise it, as a species of vermin, preying on the profit of the grazier, or on the income of the consumer.

108.

LIMING.

NOVEMBER 14. This autumn, I have observed two instances of spreading LIME upon the WHOLE FURROWS of leys or stubbles, once plowed for wheat; harrowing in the lime and the wheat together.

This practice, it seems, is not uncommon, in this country; but is not generally approved.

If, however, the soil be mellow and dry enough, to mix intimately with the lime, I do not see why it should not be superior management. The lime, in this case, becomes most effectually exposed to the air and moisture, and is lodged near the surface, to be washed down into the soil, by rains: hence, its effect must be most immediate, this way.

However,

However, in the instances here noticed, the soil lay in moist, glossy; whole plits : a state by no means adapted to the reception of lime ; which, in this case, stuck to the plits.

Nevertheless, duly timed, LIME, as a TOP-DRESSING for WHEAT, may in some cases be highly eligible.

108.

LIMING.

109.

NOVEMBER 15. Last night, there was a heavy fall of rain. One of the TURF DRAINS of the Thorpe estate (see vol. i. p. 192.), which empties itself into the boundary ditch of this farm, runs a full and *clear* stream, large enough to fill an inch bore ; and with such a current as to have raised a pile of froth in the ditch !

UNDER-
DRAINING.

110.

NOVEMBER 25. An intelligent man, and one of the largest graziers in the Midland Counties, thinks the present SCARCITY of
VOL. II. T stock

LIVESTOCK.

II.
LIVESTOCK.

stock is principally owing to dairymen turning graziers*.

Cows, he says, might, some years ago, have been picked up plentifully, in the neighbourhood: now, not one to be bought.

INCLOSING COMMON PASTURES, he thinks, has been another cause of the present scarcity of young and lean cattle. While there were common pastures to rear young stock in, the farmers found it profitable to dairy: not so much for the cheese, as for the young stock which rose from it: but, since the common pastures have been converted into feeding pieces, they have found grazing answer better than cheesemaking; more especially if they happen not to have a "dairily" wife or housekeeper.

III.

**AQUATIC
MANURE.**

1786. JANUARY 29. Last spring, by way of experiment, on the turnep fallow of No. 5.
(see

* Another man conversant in the subject, and one of the largest dairymen in the district, is of the same opinion: giving for reason, that grazing is the easier more idle employment: and adding, that the northcountry breeders, who formerly sent numbers of barren cows into this district, now graze Scotch cattle, for the Manchester and Liverpool markets.

(see MIN. 87.) dressed two lands with AQUATIC MANURE (raised some two or three years ago out of a fish pool, and turned up, about twelve months ago, into a heap to digest), the rest of the piece being manured with yard dung; the quantity of each about eight loads an acre.

The two lands, dressed with the aquatic manure, are obviously the better crop of turneps. The plants are not more numerous; but they are larger and cleaner-skinned; and, what is very striking, while the crop of the piece in general is full of catlock and chickweed (which have risen since the hoing), the two lands are, in a manner, entirely free from these weeds!

What *mines* of similar manure lie unnoticed upon half the estates in the kingdom.

III. AQUATIC MANURE.

II 2.

FEBRUARY 13. Every FARMERY ought to have a LOBBY, and a CROFT, appending to it; serving as a double fence; thereby preventing stock from running over, poaching and injuring the farm: the latter for calves, a saddle horse, and invalids.

FARM- YARDS.

T 2

I found

112.

FARM.
YARDS.

I found the conveniency of a lobby in Surrey ; and the want of one in Norfolk, and in this place ; where I can foresee the use of that which I am now forming, with a SKREEN OF PLANTING ;—embosoming the entire farmery, in such a manner as to shelter it, effectually, from the north and east winds.

113.

WHEAT.

FEBRUARY 25. It was the general opinion, in market conversation, that the present paroxysm of frost will be serviceable to the wheat crops ; in checking those which were getting too forward.

This subject naturally led on to the means of CHECKING FORWARD WHEAT, artificially, at this season of the year.

Eating wheat with sheep was unanimously condemned. Mr. — *swears* he will never eat another piece of wheat with sheep ; having experienced its evil effect more than once. But once, most particularly, he eat down a “ strange rank piece of wheat :” the consequence was, the straw was weak, and the ears so small,—such “ humble-bee ears—” it did not yield above “ a peck a threave !”

It

It was likewise unanimously agreed, that wheat is very bad feed for *sheep*: they being more liable to die suddenly on that, than on any other keep. Mr. *More* says bleeding them is a pretty certain preventive.

113.
WHEAT.

HARROWING WHEAT IN THE SPRING was also discussed. Several instances, highly advantageous, were mentioned. It was agreed, however, that it should be done when the soil is dry enough to part freely from the tines of the harrows.

114.

MARCH 3. How uncertain, and how difficult to foresee, are the PRICES of farmers' PRODUCE.

PRICES
of
PRODUCE.

At harvest, it was thought that barley would be at an "unknown price." Indeed, forty shillings to two guineas a quarter was then given, and fifty shillings talked of. Whereas, now, it is below thirty, for maltster's barley! and even a guinea is now mentioned!

T 3

Fat

114.
PRICES
of
PRODUCE.

Fat cattle, too, it was expected, and with good reason, would at Christmas, or soon after, have been sold for any money. But the fact turns out, that, notwithstanding the scarcity of keep, they are still 'as cheap as they were several months ago.

115.

TURNEPS.

MARCH 3. Four or five days ago, a fall of snow took place, with a smart frosty wind, which still continues, and to which the TURNEPS, on the ridges of the lands, lie exposed; some of them evidently taking hurt; the rind of the roots changing to a livid or blackish colour.

On examination, I find, those which are injured by the weather, are defective in their TAP ROOTS; some of which have evidently been *decayed* previous to the frost, and others are now *frozen*; the sap in them being congealed into granules of ice; the tap being thereby rendered brittle and easily broken off: while those which are yet healthy, rise with their taps on; the sap of which remains in a liquid state; though the moisture in the soil which surrounds them is in a state of ice!

I am

I am therefore going over the piece, with sledges ; collecting the discoloured roots only ; which the cattle seem now to eat as freely as they do those which are yet perfect : but, whenever the frost may break, it is more than probable, that those which now wear symptoms of disease will be the first to go to decay.

“TURNEPING” in frosty weather, if proper tools be used, is by no means so “flavish” an employment as theory may suggest. If men can stand out of doors, “hackling” turneps (pulling them up with a two-tined hook) is as comfortable work as they can well be employed on ; and if they be thrown into the cart with *forks*, the work becomes equally agreeable exercise, without exposing the hands (as in the Norfolk practice) to any extraordinary degree of cold.

Finding that small turneps were liable to drop through between the tines of a common dung fork, I have had one made with five tines, in the same form, but somewhat larger, than the common dung fork, and it answers the purpose perfectly.

T 4

The

115.

TURNEPS.

WINTER
FATTING.

115.

TURNEPS.

The whole of No. 2. (see MIN. 87.) is a fair crop, even of a common year: for the last turnep season, it is extraordinary. I have not seen, this year, any other crop equal to it. Notwithstanding the circumstances attending their first stage of growth, some of the roots have swelled to six or seven inches diameter.

It is observable, that the part sown on the HARROWED surface, without reploting (see page 189.) has the largest turneps. The land sown at the rate of THREE POUNDS of SEED an acre (see as above) would be deemed a fair crop of turneps, in any country, in any year.

116.

HORSES
in
STAGGERS.

MARCH 4. Horses still continue to die of the STAGGERS. Even the "Stafford medicine" (see MIN. 104.) now fails. Mr. — of — has lost seven or eight; and Mr. — of — nine of his best "waggon horses," and a "nag" for which he had refused forty guineas. What a loss to a farmer!

This disorder (differenced, from another species, by the name of *mad staggers*) seems

to be a violent fever, attended with a delirium; and Dr. JAMES'S POWDER is, at least, a *probable* means of relief *.

116.
HORSES
in
STAGGERS.

117.

MARCH 7. (See MIN. 102.) The first rick was got in, and thrashed, in my absence. By the information of the workmen, it opened out in good order: neither mouldy nor heated; nor even *duffy*: the fodder being sweet and bright. The GRAIN, however, is not so good a sample as I expected it would have turned out; being thin, and somewhat shrivelled; though the colour is good.

HARVEST-
ING
BARLEY.

Another rick (the best) fetched home to-day, is perfectly sweet: the FODDER, full of herbage, is as bright and as *green* as when it went into the rick, and much of it was then as green as when it was cut (see as above). And the GRAIN, though it will, I perceive, be *thin*, in the sample, is, in *colour*, of a superior quality.

The circumstances attending the SALE OF BARLEY, this year, are such, perhaps, as no man can remember to have happened.

SALE
of
BARLEY.

At

* For a *probable* means of prevention, see GLO. ii. 33.

117.
SALE
of
BARLEY.

At harvest, it was expected that barley, which wore any appearance of being well got, would have been sold at any price. But the fact turns out, that the fairest samples are now hawked about, from market to market ! Indeed, excepting some small parcels, which are now purchased for seed, little has yet been sold.

The maltsters, notwithstanding their stocks are understood to be low, buy, at present, little or none.

MALTING.

They may have two reasons for their conduct. Finding the farmers, whose pockets have been lowered by a losing year, eager to sell, they may be waiting for a fall in price. And the quality, even of the most slightly samples, cannot, it seems, be relied on.

It is found, that even the little which was harvested before the rains set in, does not “work kindly ;” owing, as the opinion is, to its being “caught in the drought :”—to its maturation being checked, or left incomplete, through a want of sufficient moisture. That which came away in one crop, “and had some wet upon it,” is said, by those who have had experience of it, to work the best.

That

That which came up at different times, and was of course cut in different states of maturity, is found to work very badly: the different ripenings "coming" at different times. And as to the "hat" and the "sprit"—the mow-burnt and the sprouted—they are of course unmaltable.

117.
MALTING.

How much circumspection is required in the management of this crop! Something depends on the nature of the soil, much on its preparation, much on the season of sowing, and much, indeed, on the method of harvesting. Upon the whole, it may be deemed of corn crops the most difficult to be cultivated with certainty.

CULTURE
of
BARLEY.

118.

MARCH 9. The frost and snow still continue. Nevertheless, the SHED BULLOCKS do very well upon turneps*.

FATTING
on
TURNEPS,

The

* These were four OXEN which I had worked in harness. But, being of the longhorned breed, and of this breed not the best, they were unfit for the purpose of draft.

118.
FATTING
ON
TURNEPS.

The weather being clear, I endeavour to get them in, during the sunshine of the forenoon, and to expose them, in the mid-day and afternoon sun, under the shed, which faces the south; and, when the day shuts in, to cover them up with straw. The oxen thrive, and the turneps are eaten up clean.

But some Scotch bullocks, abroad in the FIELD, make great waste; and, though they look healthy, they do not improve.

From the practice of this season, I am still more fully convinced, that cattle at turneps cannot remain, with propriety, in the OPEN FIELD, in very *wet*, or very *severe* weather. (See NORF. ECON. vol. i. p. 349.) In these seasons, a SHED, or a SHELTERED FOLD, appears to be requisite to common good management.

119.

CROXALL
COW.

MARCH 14. Yesterday, took a ride to Croxall to see a celebrated cow, fatted to an extraordinary weight, by Mr. PRINCEP, whose

whose stock has been mentioned in vol. i. p. 320.

119.
CROXALL
COW.

This cow is of Mr. P.'s own stock; a superior variety of the longhorned breed; and is, perhaps, the fattest and the heaviest longhorned cow that has yet been fatted.

She is now coming six years old; and was milked until June last; until which time she had purposely been kept low, to induce her to stand to the bull; but without effect. She was a "roarer" and a breaker of hedges; always running to bull. But, since she has been shut up to fat, she has been remarkably cadish and quiet.

With respect to food, she has, no doubt, been indulged with every species which a superior skill in grazing could suggest.

She has now been EIGHT MONTHS at high keep; and is to be killed tomorrow.

She is, in truth, a prodigy: fat, *upon*, beyond any thing I have ever seen. She was, it seems "cracked" or cloven along the chine; but the skin has fled from the vertebrae; which are entirely grown over, and buried a considerable depth in fat! except
in

119.
CROXALL
COW.

in one place; where there is now a dish, large enough to hold a quart of liquor.

Her *twist* bulges out, as if she had received a hurt, and the part were very much swelled, so as to be ready to break!

Her *flank*, it seems, was very good, to the touch; but will now scarcely fill the hand: the fat is "gone;"—is become so large and stretched so tight, that the fingers cannot lay hold of it.

Her *shoulder* and her *kernel* are good; but not remarkably so. But her *nache*, her *bip*, her *rib*, and her *chine* are astonishing.

Her *forend* long, but not remarkably fine.

Her *bosom* broad: *naturally*, I apprehend, a wide thick well carcassed cow; for one of this breed.

Her *flesh* mellow and her *bone* extremely fine. I grasped (with some difficulty) her fore leg with my fingers: exactly the size of that of a Scotch bullock which does not weigh half her weight.

Her dimensions I did not get with any degree of accuracy.

She is laid at seventeen score a quarter; or near a hundred stones, of fourteen pounds each.

March

March 18. I did not see this cow after she was butchered ; but am told, by an authority which cannot easily be erroneous, that she cut six inches of fat on the chine ; and weighed as follows. One of her hind-quarters eighteen score and fourteen pounds : the other eighteen score twelve ; and her fore-quarters eighteen score and one pound each ; that is, eighteen score seven pounds round ; beside nine stone of tallow : the four quarters weighing nearly one hundred and five stones !

119.
CROXALL
COW.

120.

MARCH 19. Last week died GEORGE BARWELL, whose HONESTY, INDUSTRY, and GOODSENSE, were such as rarely center in a farm labourer.

LABOURERS.

By dint of manual labour, he reared, to men and women, five children, and died worth a hundred pounds ! a *fortune*, which he of course accumulated in the wane of life : dying at the age of seventythree.

In evidence of his strict honesty,—he owed only a fixpence, and he thought of it,
in

120.
LABOURERS.

in his moments of recollection, until the hour he died; entreating his children to remember to pay it. And, as an evidence of his care and industry (were any wanted), even in delirium, he talked about his work.

Proofs of his strong natural abilities occur in these Minutes. He thought more justly, and more clearly, than any unlettered man I have met with.

121.

CRAZING.

MARCH 19. Yesterday, sold the SCOTCH BULLOCKS (see MIN. 118.) and therein finished my PRACTICE, in the MIDLAND COUNTIES.

Sold four for fortyfour pounds; the remaining five for fifty pounds.

These nine with a tenth (which, being "choaked" with a turnep and improperly treated, was butchered some weeks ago) cost in November 1785 (cattle then extremely dear) fiftyeight pounds.

They might have been sold, at Tamworth fair, the 26th July, for about seventy pounds.

Or

Or at that of Fazeley, 17th October, for about eightythree pounds.

121.

GRAZING:

They are now (or would have been, had they all been living) sold for one hundred. and four pounds.

They have, therefore, paid forty six pounds, for sixteen months keep : namely, five months at straw; six months at grafs; and five months at turneps.

Had they been bought in at a moderate price,—as four guineas to four pounds ten shillings ahead,—they would have paid well : even at the extravagant rate at which they came to hand, and notwithstanding the untowardness of last summer (see MIN. 53.); they have not done amiss:

Supposing they had been sold in July, they would have paid only twelve pounds for eight months keep : near three months at head grafs.

Had they been sold in October, they would have paid thirteen pounds, more, for three months keep, at good pasture, and head lattermath:

Now, they pay twentyone pounds, for five months keep, at turneps hay and straw.

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U

Their

121.
GRAZING.

Their weekly produce, in the different stages, stands thus. Allowing ninepence ahead aweek for their five months winter keep, they did not pay ninepence ahead aweek, for the first three months grafs; two shillings, for the second three months grafs; and nearly the same for the five months at turneps.

Hence, to have sold them in July (when most graziers of this district would have sold them) would have been evidently bad management; as, for their size, they paid well for their second three months grafs; and, had beef rose to fourpence a pound, at Christmas or soon after, which, in October, there was every reason to believe it would, they would have paid still better for two or three months at turneps.

However, to give the practice of this country fairplay, suppose these bullocks had been bought in at a moderate price; as four guineas; they would have paid in July (considering the season), highly indeed: namely, three shillings and a penny ahead aweek. Even at four pounds ten shillings, a full price under ordinary circumstances, they would have paid near three shillings.

These

121. **GRAZING.** spring; and freshen them up for market, with raygrafs or preserved pasture; selling them off as fast as they become saleable: thus partaking of the best prices before *grafs* beef be ready.

I 22.

- DISTRICT.** **HARBOROUGH, APRIL 27.** To gain a more accurate idea of the outline of the district, whose area I have traversed, during the last two years, in almost every direction, I have, in leaving it, traced the banks of its surrounding rivers,—the **ANKER**, the **TAME**, the **TRENT**, and the **SOAR**;—by Tamworth, Elford, Walton, Burton, Repton, Milton, Stanton (lovely passage of country!), King's Newton, Donnington, Cavendish Bridge, Dishley, Loughborough, Leicester; and from thence across **LEICESTERSHIRE**; by Bilsdon, Hallaton, &c. to this place: a ride of eighty miles; and, considering its length, one of the richest in the island.

- CATTLE.** The present **SCARCITY OF CATTLE** (in this district at least) appears to me no longer a mystery.

mystery. Leicestershire, not long ago, was an open arable country; including a proportion of cows and rearing cattle: now, a continued sheet of greensward. A district of grazing grounds! *

122.

CATTLE.

THE FAIR OF MARKET HARBOROUGH. A horse show, closing with a considerable cattle fair. The general and loud complaint is a want of stock.

MARKETS.

Lean cattle have got up twenty shillings ahead within these few days.

The supply of IRISH CATTLE has been kept back by easterly winds: excepting some few that have been got over with difficulty; and these in a starved state: "but just able to walk!" Many of them, it seems, are driven a hundred or a hundred and fifty miles to the coast; where, if the wind be contrary, they are detained, perhaps several days, with a very scanty allowance of food: "none on the voyage;" and but little, this season of scarcity (hay four or five pounds a ton), when they reach the English shore.

IRISH
CATTLE.

U 3

What

* The graziers being supplied with *bread* from distant districts!

122.

IRISH
CATTLE.

What a disgrace to this country ! Last year, it was estimated, I remember, that the number of cattle imported was thirty-six thousand ! without which the grazing grounds of *this* country could not have been nearly stocked. And, this year, the graziers, under an apprehension that the Irish are about to lay restrictions on the exportation of their cattle, despair of stocking their grounds !

ENGLISH
AGRICUL-
TURE.

How disgraceful to this country, to be *dependent* on another, for a supply of one of its principal necessities of life ; and to purchase it at the annual expence of some hundred thousand pounds *ready money* ! and this, too, while a very considerable share of its lands lie in a state of waste ; and while a considerable share of the food of men and cattle, which its cultivated soils at present produce, is wasted on unprofitable animals. See vol. i, p. 470. Also YORK. ECON. v. i. p. 384. and MIN. of AGR. in SURREY, Digest, p. 44. and 119.

MINUTES

M I N U T E S
O N
WOODLANDS, LIVE HEDGES,
A N D
P L A N T I N G.
I N T H E
M I D L A N D C O U N T I E S.

123.

STATFOLD, MAY 1, 1784. Finished the
NEW FENCE between No. 2. and 3.

LIVE
HEDGES.

The *ditch* an equilateral triangle; each
side or slope, as well as the width, being ex-
actly a quarter of a rod; namely, four feet
inch and half.

The *bank*, on the fence side, formed of the
three first spits of mold; a *banklet*, as a guard
to the outer brink of the ditch, of the fourth
spit, and the pointing; the last being raised
with a narrow-pointed draining tool.

U 4

The

123.
LIVE
HEDGES.

The *bedgerwood*, hawthorn transplanted; with an oakling at every rod, laid in with the hawthorn plants.

The *method of planting*. The first spit—the cultivated corn mold—a good loam, forms the bottom or foundation of the bank; over which the second spit, a brick earth, being spread evenly, the face was adjusted, and the top levelled; and a line being stretched, a foot from the angle of the mound*, a narrow trench was opened behind it; by chopping the spade down to the first spit, and drawing back the loose mold. In this trench, the plants were set, from four to six inches apart, nearly upright, and their roots bedded in the finest of the mold, in the nursery manner; planting them *in* the best of the subsoil, *upon* the cultivated corn mold; and casting the third spit behind the line of plants.

The *guard in front*, a sharp ridge or banklet, formed on the opposite brink of the ditch, with

* It is observable, however, that this width, though favorable to the infant plants, is too great where sheep are pastured on the ditch side, the first or second year after planting. Even long woolled sheep, after they were shorn, leaped across the ditch; and, getting foothold on the platform, injured some of the plants.

with the fourth spit and the pointing: *behind*, a low stiff stake-and-edder hedge; set on the bank formed by the third spit. The edders being well beaten down with a beetle, and the stakes re-driven to within a hand's breadth of the edders, the face of the hedge was trimmed, so as to prevent the spray from dripping upon the plants. The hedge strong enough to bear a man's weight: a stile from end to end.

Lastly, the back of the bank was made up, with a sufficient slope to stand firmly, and sown with raygrass and white clover.

The whole *expence* of the sixtyseven statute rods, including labour, plants, and materials, is 7*l.* 9*s.* 8*d.* Not quite two shillings and threepence a rod: not fivepence a yard*.

123.

LIVE
HEDGES

124.

MAY 20. This morning, strolled into Warwickshire.

Mr.

CULTURE
of
WOODLAND.

* JAN. 1790. In situations where the subsoil will admit of a ditch, and where stakes and edders are in plenty, I have not seen a more eligible method of raising a live hedge, than that which in the above instance was practised.

124.
CULTURE
of
WOODLAND.

Mr. LAKING, of HALL END, whose landlord (living at a distance) has judiciously entrusted him with the care of his woodlands, obligingly shewed me a YOUNG OAK WOOD, of about seven acres, which he recollects to have seen "planted" with acorns.

He was, at the time of planting, a child. He is now near seventy. He thinks it is about sixtythree or four years ago.

PLANTING
ACORNS.

The inclosure was in grass. A hole was opened by a kind of scoop or gouge, run obliquely into the surface, so as to raise up a tongue of turf; under which the acorn was placed. The sward was not broken, neither by the spade the plow nor the hoe, nor does he believe that any kind of nursing, except keeping up the fences, was used.

TRAINING
WOODS.

In about thirty years, it was "coppied," that is, partially cut down as underwood; leaving timber stands.

It has since been coppiced twice; the last time about twelve years ago; when the timbers were thinned, in a manner that does Mr. L. great credit.

The weedlings were sold for rails, chiefly, at a good price.

Mr.

Mr. HILL, in whose farm this wood stands, does not recollect the exact produce of these seven acres : but another piece of somewhat more than four acres, planted about the same time, has, he says, already paid its owner upwards of 400*l.* as nearly as may be 100*l.* an acre ; and the timbers, still too thick, are some of them worth 20*s.* to 25*s.* a tree : from forty to fifty feet high, and from six to ten inches timber girt.

There is a strikingly exact proportion between the size of the tops and the thickness of the stems. How injudicious to suffer trees to crowd each other ! Mr. L. seems fully convinced of this ; and is meditating another thinning. His ideas are very just in this respect. He is equally aware of the mischiefs ensuing from the lashing of tops, and of the utility arising from young plants standing sufficiently close to draw each other up straight ; as well as to rot off the lateral shoots of the stems.

The soil is a hungry clay, worth about 7*s.* or 8*s.* an acre ; the clay continuing a considerable depth. How judicious to plant such land with oaks. The trees are clean and full of growth.

Mr.

124.

TRAINING
WOODS.

THE SITE
of
WOODLAND.

124.
CULTURE
of
WOODLAND.

Mr. Laking also showed me a small plantation of his own; about twelve or fourteen years old. The ground was fallowed; sown with wheat; harrowed; and the acorns dibbled in by women, soon after the wheat was sown. The plants have never been touched. They are, however, getting very unsizeable; beginning to be drawn up too slender; and, no doubt, want weeding. They were never hoed, except partially, and Mr. L. seems to think cleaning the land is not of great use. The subsoil is a bed of fine clay: the plants are clean and thriving.

SOWING
ACORNS.

LADY ROBERT BERTIE has a piece of oaks getting up, by the side of Shortwood. Mr. Hill says, he sowed the acorns, about sixteen or seventeen years ago: he also sowed some ash keys, at the same time; but few of the ashes have got up, and the oaks are too thin. The acorns and keys were sown broadcast, and harrowed in with wheat.

CULTURE
of
WOODLAND.

Mr. L. says this piece was sown with tree seeds about fourteen years prior to the last sowing; but a rabbit warren then lying contiguous, the plants were all cut off.

It is in vain to attempt to propagate wood, in the neighbourhood of warrens; whether of rabbits or hares,

MAY.

125.

125.

MAY 23. Rode through AMINGTON FRITH: a young wood sprung from old stools.

TRAINING
WOODS.

How shamefully neglected ! there might now be some hundred pounds worth of weedling plants culled out of it ; and the timber left would be some hundred pounds the better for their removal. What money is lost by an improper management of woodland *.

126.

MAY 23. The myriads of CHAFERS (the brown beetles—here called “ locusts”) are this year alarming.

CHAFER.

For

* A smaller wood of young oaks, upon SCALFLEY HILL, near Burton on Trent, is in a still worse state : irrecoverably ruined for want of thinning : slender poles without tops: five if not ten times too many.

These circumstances are not mentioned to censure whoever may have in charge these particular woods ; but to endeavour to stimulate woodmen, in general, to better management.

126.
CHAFER.

For three or four evenings past, the air has been full of them : one continued buzzing ; attended with a ringing noise, like that of a coming hail-storm. During the day, the trees, the oaks especially, are covered with these insects. Of Amington wood, the top and the outside trees are covered with them. They seem almost as numerous as the leaves. In the wood, there is a continual fall of their fæces, equal to, and very much resembling a moderate fall of rain. A gust of wind shatters down the animals themselves, which fall to the ground, in showers, like acorns in autumn. The surface of the wood (about fifty acres) is almost stript of its leaves.

From conversation, I find this country generally abounds with these insects ; but never, perhaps, so much as this year. They all came forth, to common observations, one evening. The spring had been uncommonly cold ;—a sudden fit of warm weather set in ; and, in a few days, the chafers made their appearance.

MAY

127.

127.

MAKING
CHARCOAL.

MAY 27. Great quantities of CHARCOAL are still used in the iron forges of this country. For although it has been discovered, that iron, for common use, may be made with pit coal; yet, for particular purposes, where a toughness of texture is wanted, as for wire-drawing, &c. charcoal is found to be requisite.

In this country, there are sets of men whose trade is the burning of charcoal. They cut and cord, in the winter, and burn during the summer season.

There is a set, of three, now at Statfold; to whom I have attended pretty closely. The minutiae of the process is this:

The site or "hearth" being determined upon, the turf is pared off, and the sods laid on one side. The wood, about ten cord; is then laid in a ring, somewhat wider than the intended hearth; beginning on the outer circumference of the ring with the smallest of the round wood; laying the larger pieces of top wood, and the cloven
roots

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MAKING
CHARCOAL.

roots or but ends, towards the center. With these last, some of them nearly as large as bushel blocks, they begin to make their pile; leaving a kind of chimney in the middle (a vertical aperture from a foot to eighteen inches wide); and, round this core of roots, set up the top wood (which has, previously, been cut, at the time of cording, in such a manner that no forkedness, nor other awkward crookednesses are left; or if not cut in this manner, or cut improperly, it is prepared by the colliers themselves, previous to laying it ready for setting); joining the blocks, or rather fitting them in, as close to each other as possible: placing the convex side of the logs outward; forming the pile in the shape of an inverted bowl, nearly semi-globular.

The pile being formed, it is *tiled* with fods; which are *pointed*, to keep in the heat the better, by filling up the seams with fine pulverized mold.

The chimney is now filled with short pieces of dry wood: near the top a live coal is put; over this one layer more of dry pieces; and, upon these, a close cap of fod is placed:
never-

nevertheless, this one coal, not larger than the fist, and excluded from the open air, is sufficient to set the whole pile on fire.

As the pieces in the chimney burn away, they are replaced with fresh ones : thus feeding the fire with fresh fuel.

Paled hurdles are placed on the windward side of the heap, to prevent the fire from acting partially.

When the fire begins to work itself out, at the outward skirts of the bottom of the pile, it is known that the coal is fully burnt (or rather the wood sufficiently charred), which it will be, in a pile of ten cord, and in fine dry weather, in seven or eight days.

The fire, during the whole time, is carefully kept from breaking out, by throwing mold or ashes upon the weak part ; so that, though the fire passes through every part of the wood, little or none of the phlogiston, or matter of fire, escapes.

It is observable, that, notwithstanding the intense heat, no part seems to be *consumed*; not the bark only, but even the moss upon it; comes out as entire as when it went in; the only apparent change is in its being ren-

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MAKING
CHARCOAL.

dered friable, and of a black colour. Wood that is *charred* seems to be only very *highly dried*. It *shrinks* considerably during the process of charring; but there is no visible *derangements of parts*. One of the smaller pieces, which is not broken in the drawing, appears as *entire* when it comes out as when it went into the pile. The brittleness after charring, however, shows that the texture of the wood is altered by the action of the fire.

As soon as the fire is out of the coal, on the outside of the heap, the workmen begin to "draw;" which is done by running a peel between the coal and the hearth; raising up the coal, in such a manner, as to let the mold and ashes of the fods fall through between the pieces, upon the inward parts still full of fire. If this makes its appearance, in any particular spot, a peel full of ashes is immediately thrown against it.

Having got sufficiently near to the fire, the coals raised by the peel are raked off, with long wide toothed iron rakes: the teeth about a foot long; and standing about six inches apart: the handle and head of wood, except a plate of iron on the back; with which the small coal is gathered together.

gether. No sieve, nor any rake with finer teeth than the above, is used. The coal being light, it is readily brought to the surface of the ashes and dirt; and, being there, is easily collected (though with a kind of flight) with the back of the rake.

The side, thus drawn, being rounded up, and secured with ashes, another, the coolest part, is drawn in the same manner.

The drawing is an infernal business: the men work among fire and phlogiston enough to suffocate Satan himself.

Such pieces as still retain fire, after they are drawn, are quenched with water; which the workmen have in plenty standing by them, in pails. If a large piece contain much fire (which hides itself chiefly in the chinks of the large pieces), it is plunged, bodily, into the water. If the heap itself prove too refractory to be kept under by the ashes alone, a sufficient quantity of water is thrown upon it, to keep the fire under. Such large pieces as are suspicious are laid on one side; in order that those which take fire may be the more readily discovered.

A waggon attends to take away the coal, as fast as it is drawn. For, if it take fire,

X 2

or

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MAKING
CHARCOAL.

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MAKING
CHARCOAL.

or get wet, in the hands of the "burners," it is at their risque : and while in the waggon, it is at the risque of the waggoner. Every particle *burnt* is so much entire waste.

en.

128.

NATURAL
WOODLAND.

JUNE 10. It is striking to see the number of YOUNG OAK PLANTS, now springing up, in the grass grounds of this neighbourhood. Some grounds are scattered thick enough for a crop of timber : frequently two, three, or four in a square yard !

On examination, the acorns, invariably, are buried partially in the soil ; and their upper surfaces overgrown with moss and roots of grass ; so that no part of them is seen : but, on pressing the finger against the root of the seedling plant, the acorn is readily found in that situation.

The acorns still appear as perfect as they could be the day they were dropt : notwithstanding some of the seedling plants are already six inches high, and their roots not less than a foot long !

From the manner in which the acorns now hang to the plants (by two tough ligaments growing

growing out of the two lobes of the acorn), the roots appear to have struck first, and the stem to have, afterward, shot up from it. The roots are now (the former part of June) the size of wheat straws. The stems somewhat thicker than the stalks of raygrafs; with a tuft of leaves on the top of each.

How these acorns became so universally and so regularly scattered over the surface, and by what they were thus partially buried in the soil, seems unaccountable.

Query, have they been dropt, by rooks or woodpigeons, and trodden into the ground by cattle? Or do the rooks intentionally hide them in this manner, and afterward forget them?

Be this as it may, the circumstance under notice proves, that oaks may be propagated on sward, at a small expence.

Perhaps, eat the ground bare; sow the acorns broadcast, when the surface is moist; and roll them in with a light roller. Or place them, by hand, at regular distances, and tread them in.

The seedling plants, under notice, are healthy and vigorous in a superior degree.

128.

NATURAL
WOODLAND.CULTURE
of
WOODLAND.

129.

129.

CHAFER,

JUNE 14. (See MIN. 126.) About ten days ago, the chafers were *finishing* the foliage of Statfold wood! The under boughs (which they had left 'till the last) were then covered with them. I counted near fifty on one small branchy twig, no thicker than the finger!

Yesterday, I observed near Breedon, in this district, a wood *partially* eaten to the bare twigs: most of the trees wearing their winter appearance! while some few are scarcely touched! And the same partiality is, I find, more or less observable everywhere.

This is a curious fact. The *age* of the tree does *not*, evidently, influence their choice. Statfold wood (one hundred and fifty years old) and Shuttington coppice (a young wood) are equally injured.

ENEMIES
of
THE OAK.

This insect appears one of the greatest enemies of the oak, in this country. Query, are not hard winters, are not long and late frosts, friendly to this insect; by keeping the chrysales locked up from devourers, until late

late in the spring ; when warm weather setting in suddenly, as it did this year (see vol. i. p. 149.), the entire brood escape.

129.

GROWTH
of
THE OAK.

If hard winters be favorable to the chafer, it is highly probable that the narrow rings of the oak, observed by LINNEUS to correspond with the hard winters of 1578, 1687, and 1709*, were *not* occasioned by the SEVERITY of those winters ; but by the abundance of INSECTS to which they gave birth.

Indeed, it is not easy to conceive how the severity of winter, simply considered, could have any influence or effect of that nature. Few men can remember so severe a winter, in this country, as the last ; yet no man perhaps ever knew vegetation so rapid or so vigorous, as it has been, and still continues, this spring. The abundant flow of sap in the oak, more particularly, was obvious to common observation : the oldest bark peelers remember not a similar instance. To use the strong expression of an experienced woodward, on this circumstance, "one might have washed one's hands in it."

X 4

JULY

* See Dr. PULTNEY'S General View of the Writings of LINNEUS, page 35.

130.

130.

GROWTH
of
THE OAK.

JULY 25. This summer, the oak puts on an unusual appearance. The spring shoot having been taken off (entirely from most individuals—see the last Minute) by the chafer, the Midsummer shoot (or more accurately speaking, a fresh shoot) has supplied its place; the trees now appearing in the colour and softness of May!

The leaves, however, as yet, are small, thin, and faint; unable, probably, to draw up any considerable supply of sap: and even supposing them to acquire, before autumn, their natural size and texture, the loss of time, and the extraordinary check the sap may have received during the defoliated state of the trees, will probably prevent them, this year, from forming their ordinary increase of wood: a circumstance which may, hereafter, be easily proved, by examination.

JULY

JULY 25. A striking instance of the utility of trimming off the side shoots of hedges occurs in No. 4.

TRAINING
HEDGES.

The hedge on the west side, a young-grown hedge, having been plashed some four or five years ago, I have lately trimmed, on both sides, so as to reduce it to about four feet thick : the greatest thickness to which hedges, in general, can with propriety be suffered to spread.

That on the north side, an old-grown hedge, of perhaps twenty years' growth from the last plashing, occupies, on a medium, a slip of ground of twelve feet in width : one bundle of boughs stretches out, on one side, more than ten feet from the stem; and hangs so low that neither plow can work, nor even a sheep graze, beneath it.

The difference between twelve and four is eight feet of *entirely waste ground*, near fifty rods in length : so that by the improper management of this hedge there are more than twenty square perches of land laid waste; which half rood of land might, by a few hours

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TRAINING
HEDGES.

hours well timed labour, have remained productive.

If a neat farmer, in this or almost any other district, had upon his farm a pitplace or hollow way, containing half this quantity of land, he would work at it, for weeks, to make it culturable.

The firstmentioned hedge took a man two days to reduce it; but, in that case, there was a border of briars and brambles, several feet wide, which was to be cleared away, before he could come at the hedge. A border which not only occasioned a waste of land, without any counter benefit; but was of course unfriendly, and in a degree dangerous, to sheep: whereas now stock may graze with safety up to the stems of the hedge: and the plow and fithe have equal freedom.

The objection held out against the practice of trimming hedges is a loss of wood.

If hedges be trimmed, not on the *sides* only, but on the *top*, keeping them fence height, this objection certainly has its weight, and, where wood for dead hedges is wanted, is an actual loss. But, when it is set up against the practice of striking off licentious side shoots only, leaving the top, or
more

more properly the *hedge*, to run up, it has little or no foundation. For the main shoots—the valuable part of the hedge—or, as has been said, the hedge itself—rises in the middle; and is rather invigorated than injured by checking the growth of the sides; giving the hedge plants an upward tendency; and turning the current of sap, which would have been spent on the side branches, into a more useful channel; thereby converting it to the most valuable parts of hedging materials—stakes and shooting wood.

In six or seven years, the main shoots of the hedge under notice will be fit for these purposes; and may, then, be taken off, fence height; leaving, free of cost, a live fence, which, in the course of ten years more, will, under similar management, be again in a similar state*.

Hence,

* This mode of treatment, however, must not be too often repeated. In a course of years, the entire hedge will require to be cut down to the stubs; and a fresh range of stems to be raised. But, by the mode of treatment here recommended, the stems require to be renewed much less often, than they do under ordinary management. For, by giving the weaker stems perpetual air and daylight, on the sides, and by giving them perfect freedom, above, once in nine or ten years, they are enabled to struggle the longer with their more powerful neighbours,

131.

TRAINING
HEDGES.

131.

TRAINING
HEDGES.

Hence, upon the whole, it appears, evidently, that taking off the side shoots of hedges is highly beneficial to the tenant; as giving him, at least without loss, the use of his land; and still more highly to the estate; by prolonging the duration of the fence. See MIN. 161.

132.

TRAINING
HEDGES.

1785. JAN. 24. The evil effects of WATER STANDING AGAINST LIVE HEDGES are obvious in No. 18.; as well as in other instances, which I have lately observed.

In the instance more particularly under notice, it is evident, that wherever the water *flood* in the ditch (which is now scoured) there the quick is stunted and mossy (and the same effect is observable in the other instances); while in the intermediate parts, where there has been a *current* of water (this ditch acting, in wet seasons, as a shore to some lands which lie above it), the hedge is unusually stout of its age (eight or ten years old).

May we from hence conclude that hedges, like grassland, are benefited by RUNNING WATER, and injured by STANDING WATER?

Be

Be this as it may, it is evident enough that standing water, whether it lodge *high in the ditch* so as to reach the region of the feeding-fibres, or on the *back of the hedge*, is prejudicial*.

Hence the impropriety of *planting the hedge on the upper side of the ditch*; especially across ridge and furrow; as in this case the water, dammed in the furrows by the bank made across them, has no other means of escape than that of oozing through the bank; thus becoming productive of double mischief. See NÖRF. ECON. MIN. 45.

133.

FEBRUARY 26. Counted the rings of a sound, full-grown ASH, taken down in No. 9; measuring twentyone inches in diameter.

The

* I have observed, in more than one instance, a striking good effect, on NEWLY PLANTED HEDGES, from water lodging at the *bottom of the ditch*; affording, especially in a dry summer, a seasonable supply of moisture to the young plants, without incommoding their roots. This, however, is no argument in favor of suffering the ditches of older hedges to be warped up, and filled with water to the brim; as is too frequently the case, in every district.

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TRAINING
HEDGES.

PLANTING
HEDGES.

GROWTH
of
THE ASH.

133.

GROWTH
of
THE ASH.

The number of rings, ninety. Of the first ten years, as well as of the last ten, the growth had been slow. In the intermediate years, the different thicknesses of the rings, in different years, are striking.

What is the cause of this disparity? Which description of years are *wood* years, and which not? a curious research!

134.

GROWTH
of
THE ELM.

MARCH 1. Yesterday, took down three remarkably thriving ELMs*.

The number of rings, twenty-nine, beside the inner bark: thirty years old: an age which is corroborated by living evidence†.

Two of them *but* more than two feet diameter; and measure, at four feet high, more than eighteen inches.

PRODUCE
of
ELMS.

What a produce! These two, as large, but not larger, on a par, than eight more left standing,

* By way of breaking a line, for the purpose of ornament.

† In another instance, in which the time of planting is ascertainable by written evidence, the number of rings corresponds exactly with the number of year's growths.

standing, measure fortyfour feet, timber-measure; including bark : about forty feet of saleable timber; worth a shilling a foot. 2 0 0

16 fencing posts and rails, 4*d*. 0 5 4

9 feet of cord wood, at 10*s*. 0 11 4

40 spray faggots — 0 3 4

£. 3 0 0

These trees stand not quite eight yards from each other : consequently each may be said to occupy two rods or square perches of land ; and their produce an acre a year may be easily calculated.

From the almost uniform size of the rings, these elms appear to have been still in full growth ; and might, perhaps, have continued so, ten or twenty years longer ; provided the distance between them would have admitted air and headroom. But their tops already interfered, and their roots, in all probability, had reached each other : it is therefore unlikely that they should long have continued to make a similar progress ; and a doubt, perhaps, whether they would have long paid for LANDROOM. Beside, the grass, though already injured, will soon recover itself, and the

134.

PRODUCE
of
ELMS.

134.

PRODUCE
of
ELMS.

the roots of the elm rotting in the ground will become nourishment to it. And these trees being "stocked" (the roots cut off close to the Buts) the ground disturbed in taking them down is small: a hole about three feet in diameter, which half a load of mold would fill up; the surface of which being sown with grafs seeds, the entire ground would revert immediately to grafs land •.

PLANTING.

Not the SOIL only, but the PLANTS from which those trees have been raised, appear to have been good. Each tree was furnished with ten or twelve horizontal roots, set regularly round the but: each about the thickness of the thigh. The downward roots few: merely a bundle of long wirey fibres, resembling a birch broom.

MARCH

• I do not mean to recommend, in general terms, the planting of rich deep sandy loams worth, as old grafs-land, twentyfive to thirty shillings an acre (as the land under notice is), with elms; yet, from this incident it appears, that there may be situations in which they might be planted on rich grafslands with profit.

It is here observable, however, that in another instance, on this estate, in which elms have been planted on a less rich soil, and on a cooler more retentive sub-soil, they have made a slow progress.

135.

135.

MARCH 5. Counted the rings of a common POPLAR. The number fifty. The diameter, at the butt, two feet three inches; at ten feet high, twentyfour inches.

GROWTH
of
POPLAR;

The last ten years, it has grown very slowly. Its increase, in that time, not being more than three inches diameter; or one and a half inch in the width of the rings. It had therefore grown ten inches and a half in the first forty years: or a quarter of an inch each year.

This tree is beginning to rot at the heart. In the lower part of the stem, about an inch and a half in diameter is entirely decayed. It has therefore stood too long: though, to appearance, it was a healthy thriving tree. Even supposing it to have fallen perfectly sound, the increase for the last ten years has been inadequate to its encumbrance, and the interest of its value at forty years old; at which age it would have paid well for planting and landroom. The soil, a rich loam: the situation moist.

136.

136.

SALE
of
TIMBER.

MARCH 18. Today, took a ride to Atherston, to an auction of one hundred and sixty-three OAK TREES, now standing in MEREVALE WOOD.

They were put up to sale, under these conditions: The whole to be taken down this season: ten percent of the purchase money to be paid within three days after sale, and security given for the remainder; the first moiety to be cleared in full at Ladyday 1786, and the remaining moiety at Michaelmas following: the ground to be finally cleared before Michaelmas 1787: the road to be repaired by the seller: not to advance less than ten pounds each bidding; and, if no one offer an advance within five minutes after the last bidding, the last bidder to be the purchaser.

They were put up at three o'clock, at 500*l.* and sold, a little before four, at the extraordinary sum of 1200*l.*!

This lot of trees makes part of a wood, which caps a bold strongly featured promontory,

tory, and contains ten times that number of trees: some of them as valuable, and others still more valuable, than those which were sold today.

They are, beyond comparison, the tallest oaks I ever saw. Some of them are said to measure seventy feet in the stem! I estimated several at sixty.

One of the largest trees, in the lot sold today, girths, at five feet high, ten feet; and its stem I estimated at forty feet. If it girths only eight feet at twenty feet high, it contains four tons of timber; which at three pounds a ton, the current price for ordinary timber, is twelve pounds. But to stand against these large trees, there are others which have not twenty feet of timber each, and a few that are as "hollow as churns."

The very large trees now stand from two to three rods asunder; but must, in their youthful state, have stood in the grove manner; their stems being straight and clean as Weymouth pines.

The SOIL a shallow loam: the SUBSTRATUM, rock.

136.

SALE
of
TIMBER.

GROWTH
of
THE OAK.

137.

137.

RISE
of
S A P.

APRIL 16. Conversing with two experienced woodmen, on THE RISE OF THE SAP OF OAK, they were clearly of opinion, founded on many years experience in felling timber, that the sap of *old* trees rises much earlier than that of *young* ones.

In pruning and setting up an old oak, with a view to ornament, two days ago, the sap had evidently reached the uppermost twigs : though the grofsberry is now only foliating, and the fallow has not yet blowed.

Mr.—, a considerable timber dealer, says the bark of the trees, in Merevale wood, would now run ; and the woodmen corroborate this, in saying, that they generally begin a fortnight sooner in that wood (the oldest in the neighbourhood) than in any other.

This early rise of sap, in old trees, may be owing to the vessels being comparatively large and rigid ; the bark being less elastic, not embracing the wood so closely, as that of young growing trees, which will even
burst

burst the bark to gain that freedom of circulation, which, perhaps, in the end, is injurious to old trees.

137.
RISE
of
SAP.

138.

APRIL 16. On Monday last was sold by auction, seven hundred and fifty OAK TREES, standing on the stem, in WEEFORD PARK.

SALE
of
TIMBER.

The conditions of sale were—to advance five pounds at each bidding, two bidders to make a sale. The buyer to pay down immediately five percent, and give security for the remainder: one half of which to be paid at Michaelmas next, the other half at Midsummer 1786. The ground to be cleared by Christmas next; with, however, liberty to let the timber remain on an adjoining common, for any further time. To have the usual privilege of making sawpits, cutting turf for charcoal, and, in this case, of cutting “kidbands:”—a dangerous privilege; except, as in this instance, where there is much coppice wood to go over.

These trees having been previously valued, for the seller, at 610l. were put up at 600l.

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138.

SALE
of
TIMBER.

consequently could not be sold under the estimate. They fetched 655l.

It is observable that these trees being "small butted" and large topped, that is, the tops being large in proportion to the stems, and the BARK being *young*, and of a good quality, it sold for near *one third* of the whole purchase: whereas the bark of the "long butted," small topped trees of Merevale, did not, it seems, sell for more than *one tenth* of the timber. But, in this case, the trees were *old*, and the bark, of course, foul, and of an inferior quality.

139.

SALE
of
TIMBER.

APRIL 21. Yesterday came on the sale by auction of the OAK TIMBER of STATFOLD.

The timber of this estate was tied up (even so far as to an impeachment of waste for its necessary repairs) in a remarkable manner, by the late possessor; who, being long in possession of the estate, had rendered its timber very valuable.

STATFOLD WOOD, though not extensive, has long been an ornament to this country;
and

and its timber has always been considered as being of a valuable quality.

Its extent is under twenty acres ; its timber consisting chiefly of oak and ash :—the oaks many of them good trees ;—worth five six or seven pounds a tree.

It is observable, that the best oaks stand on the south and southwest quarters ; the north side being principally ash. See vol. i. p. 100.

How deceitful are the appearances of woods ! This wood appears to the eye at a distance, as well as on a nearer view, to be a *large oak wood*. Yet, at present, the eighteen or twenty acres contain only four hundred and fiftytwo trees, large and small : not more than twenty to twentyfive trees an acre ; the whole being not more than adequate to the building of one fourth of a seventyfour gun ship* !

This wood, so far as can be judged from the number of years growth, is about one hundred and fifty years old : the trees in general wearing the appearance of being full grown, and some few verging towards decay. The whole, as a crop, fully ripe, and fit to be harvested.

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* See PLANT. and ORN. GARD. p. 499.

139.

SALE

of

TIMBER.

139.
SALE
of
TIMBER.

A recent circumstance having relaxed the restrictions, and afforded a legal opportunity of taking down this timber, and this opportunity depending on the life of an infant, it has been thought expedient to embrace it: the season for taking down OAK being at hand.

Under these circumstances, the whole of the OAK TIMBER upon the estate, whether in the wood or in the hedgerows, was looked over, and such *full grown* trees as are not wanted for ORNAMENT, were divided into four lots; marked; and advertised for sale*.

The

* VALUING TIMBER. From the time of advertising (ten days ago) until the day before the sale, one person only came to view and value! This person made a deliberate valuation. The four hundred and forty trees took him two days; valuing each tree separately: making a kind of rough measurement of some few (but without using a measuring rod, see YORK. ECON. v. i. 241.) ; depending chiefly upon the eye: making separate valuations of the TIMBER and the PARK. See vol. i. p. 101.

The day before the sale, some six or eight valuers went over the lots; and, the morning of the auction, six or eight more; some of them tanners to estimate the BARK. Two or three sets of two each, whose time being much too short to value each tree separately, picked out eight or ten trees, of nearly the same size, and,

The conditions of sale were these :

1. Two bidders to make a sale.
2. No advance less than five pounds, to be considered as a bidding.
3. No person advancing five pounds within five minutes after the last bidding, the last bidder to be the buyer.
4. The purchaser to pay down ten percent of the purchase money, and give immediate security, if required, for the remainder ; or the lot, for want of such deposit or security, to be put up again to sale: one half of the remaining purchase money to be paid on, or before, the 25th December next, and the other moiety on or before 29th September, 1786.
5. The coal wood to be burnt in the wood or in the "spinney" or grove ; the purchaser having liberty of cutting turf, also of making sawpits, in either of these places. The ground

and, valuing one, the value of the whole was in this loose way estimated.

These particulars are preserved to show the varying practices of districts, and to convey information on a subject which is better understood by the *buyers*, than by the *sellers* of timber ; for whose information chiefly *these Minutes* are published.

139.
SALE
of
TIMBER.

139.

SALE
of
TIMBER.

ground to be entirely cleared before Christmas 1786.

There having been, a few years ago, a deliberate valuation made of these trees, the several lots were, in common prudence, put up at near their estimated value; it having been previously declared that no bidder should be employed on the part of the feller; but that the sale should be real, free, and determinate; a declaration, which, when bidders are sufficiently numerous, and unconnected with each other, is, perhaps generally, found policy in the feller.

In this instance, the biddings were rapid and spirited, almost beyond example.

The four hundred and forty trees fetched upwards of three hundred pounds *more* than their estimated value! So that grounding the calculation on the late estimate, and allowing for an increased growth of timber, they sold at the rate of three guineas to three pounds ten shillings a ton, of forty feet of timber.

After the timber was sold, came on the sale of BARK: indeed, the business, or rather the bustle, of the day seemed only to begin, as the sale of timber ended. The purchasers
of

of the lots, and the TANNERS, who attended, were at once in agitation. Here a group of buyers eager to overreach the tanners, and there a group of tanners as eager to underprize the bark.

The BARK of this timber was estimated at about *one seventh* of what the timber sold for. See MIN. 138.

The timbermen of this country, as well as the tanners, seem well acquainted with the QUALITY of BARK; which varies much in value. The “rough”—“heavy” (that is, thick) bark of the *stems* of *old* timber is esteemed of a bad quality. On the contrary, the “fleshy”—“light” (that is, thin) bark of *youthful* growing stems, and of well grown *tops*, is deemed of a good quality. Bark, however, may be too light, too thin, too young, so as to shrink too much in drying.

But the PRICE OF BARK varies more in respect to *situation*, than intrinsic *quality*. At TAMWORTH it is, now, worth forty shillings a ton. At ATHERSTON, only nine miles distant, it will not fetch more than thirty shillings, or a guinea and a half, a ton. A large parcel was sold lately, in WARWICKSHIRE,

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SALE
of
BARK.

QUALITY
of
BARK.

PRICE
of
BARK.

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PRICE
of
BARK.

WICKSHIRE, at twentyfive; and in SHROPSHIRE it may, now, be bought for twenty shillings a ton. Differences which probably arise in the different proportions between the number of tanners and the quantity of timber fallen in the several situations: the CARRIAGE of BARK bearing a considerable proportion to its original value.

140.

TIME
of
FELLING
TIMBER.

APRIL 21. The purchasers of the MEREVALE TIMBER began to fell, yesterday: although the Grosfsbery has barely foliated, and the hawthorn but just beginning to open. And it is the opinion of experienced timbermen, that some of the trees in Statfold wood (about fifty years younger) would likewise run.

R I S E
of
S A P.

Query, is this early rise of sap owing to the specific nature of the trees of this district? or to the nature of the soil or climate? or are woodmen in other districts ignorant as to the circumstance of the bark of *old* trees running *so much* earlier than that of *younger* wood?

It

It is observable, that young trees, and even the young wood of old trees, retain the leaves longer than the older branches of aged trees: the sap having, *perhaps*, a less free circulation, neither rises nor falls so rapidly, as it does in old wood; in which the ducts are become large, and in which the "flesh" of the bark may have lost, in great part, its elasticity.

140.

RISE
of
SAP.

141.

APRIL 21. The "LAG" is a common blemish of timber trees in this country: a defect which I do not remember to have met with in any other; unless it be included, elsewhere, in that of SHAKEY. It is a cleft, or rift, reaching sometimes from the top to the bottom of the stem, and, perhaps, to near its center.

THE LAG
in
TIMBER.

This defect is believed to be caused by frost. No other ground, however, is produced for this opinion, than the evidence of an old man, who lives (or lived) in the neighbourhood of SUTTON PARK (in which
the

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THE LAG
in
TIMBER.

the "lag" is very prevalent *), and who says that, "in the hard frost," he has, in the night, heard the trees burst, with reports as loud as those of a gun! and that, on examination, he has found cracks in them, large enough to thrust in his hand.

If this be a fact, it is an interesting one. It is, at least, probable; and is, indeed, the only rational account that, perhaps, can be given of this too well ascertained effect †.

142.

RISE
of
SAP.

APRIL 28. Two of the purchasers of the STATFOLD OAKS began felling today.

The tops run perfectly well; but the lower parts of the stems move with difficulty. This may seem a paradox. Yet the fact is so notorious that an old barkpeeler will have it, the sap enters at the top!

The

* Different woods varying much as to this disease.

† I publish this Minute to bring forward a fact in Natural History, which otherwise, perhaps, might not have come before the public. The circumstance accounting for it was related to me by Mr. SKEADY of Tamworth.

The buds are just beginning to *swell*: the small twigs are full of sap: and no wonder they are so; for the buds not being yet *opened*, the sap has yet no *vent*, and there is, of course, a *surcharge*. This SURCHARGE necessarily takes place at the EXTREMITIES of the BOUGHS; which might be termed the *bottom* of the CONTAINING VESSEL; while the roots and the stem might be said to act the part of a tunnel, *down* which the sap, collected by the fibrils, is poured.

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RISE
of
SAP.

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MAY 1. This morning, spent two or three hours in STATFOLD WOOD.

In one set of workmen, there are nine FELLERS to seven PEELERS! and, in another, three fellers to four or five peelers. But "stocking"—see vol. i. p. 102.—requires a greater proportion of fellers than axefelling, in the more usual way.

The minutiae of STOCKING are these: the horizontal roots having been bared with a mattock, are cut through with falling axes (see as above);—and one end of a rope
having

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of
FELLING
TIMBER.

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METHOD
of
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having been previously, or while the surface roots were cutting, fixed judiciously to a bough in the head of the tree, and the other end to the bottom of a neighbouring tree, in a proper direction, the tap and other downward roots, if not very large, are broken off, by means of this purchase; tearing out the crown of the root entire.

Much judgment and circumspection are requisite in letting down large spreading trees. Two of those already fallen are much injured by rents below the crowns, and a third is cleft halfway down the stem, by injudicious management.

The mischief is sometimes done by a spreading bough catching a standing tree; but, more frequently, by a heavy arm falling uppermost, and dashing to one side when the tree takes the ground. The worst rent (of a valuable tree) was caused by two boughs, standing forkwise; one of them dashing to one side, the other to the opposite side of the stem, while a third took the ground.

The preventive is to cut off or "cripple" the dangerous boughs, while the tree is standing: an expedient which has a doubly
good

good effect ; as it not only guards against the splitting, but inclines the tree to fall, with greater certainty, toward the desired point.

A log of wood, judiciously placed at the foot of the falling tree, assists in giving it a proper bias. And wedges, driven in behind, have a similar effect.

It is very observable, that the largest trees, of this wood, have the smallest tap roots : their horizontal roots being numerous, and lying quite up to the surface ; while those of the stunted inferior trees are all tap or downward roots ; lying deep in the ground ; having few horizontal ones.

In this instance, the TOPSOIL is good, with a hungry, gravelly, yellow loam, for the SUBSOIL.

These stunted trees are an evidence that, in situations where the subsoil is of an inferior quality, oaks, though raised from the acorn in the place where they are intended to grow up, should be TAPPED. See NORF. ECON. MIN. 36.

One of the largest trees, in this wood, is much depreciated by having its stately stem
VOL. II. Z fouled

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TRAINING
TIMBER.

fouled and rendered coarse, by rotten and small boughs sticking out of it, from top to bottom. Its purchaser allows it would have been worth more by two guineas, had the stem been clean. One hour's work, or half that labour, bestowed upon it a hundred and twenty years ago, would have given this desirable quality.

What a mistaken idea that timber trees should not be touched with a PRUNING INSTRUMENT! It is injurious, no doubt, to take off principal boughs, after the tree is full grown, or even in the latter stages of its growth; but to suffer the stem, while young, to remain foul with dead stumps, and small branches, is unpardonable. See PLANTING and ORN. GARD. also NORF. ECON. on this subject.

144.

AGE
of
TIMBER.

MAY 14. The falling of the MEREVALE TIMBER (see MIN. 136.) was finished, yesterday. Scarcely one tree in ten with a perfectly sound "bottom!" Many of them hollow at the heart, a considerable way up, and

and the entire stems of course tainted ! What a dear bargain ! How injudicious to suffer timber to stand thus to waste !

The length of this timber is extraordinary. A large-girting tree measures sixty feet to the first bough ; with a continuation of upright stem, near ten feet more !

Though these trees seemed to stand well aboveground, they have, or have had, very strong downward roots ; though the substratum be rock. But the fissures of this were probably their great encouragement.

Counted the rings of one of these trees, about three feet diameter at the but, and two at the girting place ; and ran over those of another tree. As nearly as could be distinguished, TWO HUNDRED RINGS.

It is observable that, in several of these trees, a core of about ten years growth has shrunk and separated from the more outward rings.

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AGE
of
TIMBER.

GROWTH
of
THE OAK.

AGE
of
THE OAK.

145.

MAY 22. One set of woodfellers, now in
STATFOLD WOOD, " rope " very few trees ;
Z 2 throwing

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of
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throwing them down with WEDGES alone : which, if the " heart-spurn" be found (or rather brittle) will, they say, break it sooner, than almost any number of men, pulling at it with a rope.

Their method is to cut one of the main highgrowing horizontal roots, or " side spurns," just through; sticking in the wedges between the but, and the end of the root.

This is less trouble, and consequently gains a quicker dispatch, than roping ; but it is less certain as to the point of falling. Nevertheless, if the " toes" be left, some of a judicious length to prevent the tree from heeling improperly when it first begins to fall, and others left uncut to pull it to the given point in falling, much may be done by wedges.

But, if the taproot be pliable, yielding to the wedges without cracking, this method of throwing down timber trees becomes in a degree impracticable.

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PRACTICE
in
PLANTING.

MAY 25. On the 8th *February*, I began to grub, level, and DOUBLE-DIG, fourteen to eighteen inches deep, PLANTATION A. See vol. i. p. 111.

But

But frost, with some snow, continuing until the *middle of March*, I did not begin even to DIG HOLES, until the latter end of that month. And this in good time, probably: neither the hazel, nor the grosberry had then announced spring!

The SIZE of the HOLES, two feet to two feet and a half diameter, and twentyone inches to two feet deep; the bottoms being finally chopped with a spade, so as to loosen the soil some inches deeper: the largest sizes, for PINES, eight to ten feet high; the smaller, for OAKS and other deciduous plants, five or six feet in height,

Began TAKING UP and PLANTING the 8th of *April*: having been kept back, until that time, by the untowardness of the weather, and the backwardness of the season. The plantation not being extensive, I was the less anxious to begin; as being willing to catch, if possible, a moist soft air, to make it in.

REMOVED THE PLANTS, from the nursery ground to the plantation, about a quarter of a mile distant, upon a SLEDGE, boarded on the bottom, and furnished with side boards (an implement most useful in planting); covering up the roots with mats, to

Z 3

shield

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in
PLANTING.

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in
PLANTING.

shield them from a dry piercing air; keeping them aboveground as short a time as possible,

In PLANTING, filled in such part of the mold as was requisite to raise the given plant to a proper height, and, to endeavour to counteract the dryness of the season, threw a pail of water, upon the mold thus returned, into each hole; stirring up the earth and water; and setting the plant upon this prepared bed: then filling in dry mold; working it among the roots with the HAND *; at the same time moving the plant gently, by a circuitous motion, to let in the mold more compleatly among the fibers.

The roots being thus bedded, and wholly covered with mold, it was pressed down pretty hard with the foot, and another pail of water poured round the *outside* of the hole; covering up the wetted surface with the remainder of the mold; rounding it gently to the stem; and leaving a ring, corresponding with the outer margin of the hole, to catch

* The SPADE is a dangerous tool to be used, as it too frequently is, *within* the hole, after the plant is set in it. The mold should be trimmed entirely by hand,

catch the rain, or to receive, if requisite, the future waterings.

April 11. The sun continuing bright, and the wind parching, I did not dare to expose the roots of the plants to the air; but employed the workmen in PREPARING THE HOLES; by returning part of the mold, so as to raise the bottom high enough, on a par, to set the plants on, and throwing a pail of water into each hole.

April 12. The day being cloudy, I went on with planting, in the prepared holes.

On breaking the glassy surface, left by the water upon the top of the mold, I found it in a most desirable state: mellow and moist, without being glutinous (as I had feared from the appearance of the surface it would have been) or even mortary; it having acquired, by the water passing through it, no degree of tenacity.

Rounded the surface of the mold—the bottom of the hole;—and, on this little swell or hillock, set the plant (the roots naked): covered the roots with prepared mold from the next hole; and this with dry mold; pouring water round the outside; filling

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in
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up the hole with dry mold; and leaving a ring as before.

April 13. Another parching day.

By way of improving upon past management, filled the unplanted holes almost full to the top, giving each hole another pail of water; in order to get a sufficiency of prepared mold to bed the roots in; as well as to moisten, more effectually, the sides of the holes, and thereby give a general coolness and moisture to the entire region of the roots.

April 23. FINISHED PLANTING,—during a continuance of dry air and sunshine, accompanied with a cold piercing brisk north wind. Nevertheless, some pines, moved in this air, are now as healthy and vigorous, as the rest of the plantation.

The PROCESS of the LATTER PLANTING was nearly the same as the first: the holes were previously filled threefourths full, and watered sufficiently; to give moist mold enough to set the plants on, and enough to bed their roots in—TIRE OVER TIRE; spreading the roots and fibers, nearly horizontally; somewhat dipping.

This,

This, for **NAKED ROOTS**, appears to be as much as can be accomplished. When **BALLS OF EARTH** can be transferred from the nursery to the plantation (as was the case with many of those transplanted), moistened mold to set them on is only wanted ; filling in dry earth, and finally treading and watering.

A strong evidence, in favor of watering the holes before planting, appeared in digging fresh holes, two or three feet from the outside of those which had previously been planted in ; the soil being moist and in good order for working, even at this distance, quite up to the surface ! And reflecting on this incident, it strikes me, that, provided the holes be filled in high enough to receive the plants, and sufficiently watered, it may not be necessary to bed the roots in wet mold. Fine dry mold works better in among the fibers ; and if the plant be set immediately upon wet soil, it is very evident, from this and other instances of a similar kind, that the moisture will quickly rise above the region of the roots ; even to the very surface ; as, on examination, it has evidently done in every planted hole.

In

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In desperate cases, it may be necessary to apply paste immediately to the fibers; but, perhaps, well rooted plants, which have not been too long out of the ground, may not, though naked of mold, require it.

THE WATERING OF HOLES BEFORE PLANTING, in the manner I have practised this season, is perhaps a new process. I have never met with the idea, either in theory or practice: a circumstance the more remarkable, as it seems to set the dryness of the season,—the bugbear of planters,—at defiance.

The principal difference, to the planter, between a dry and a moist season is evidently this. In the latter, the soil of the plantation is sufficiently cool and moist for the purposes of vegetation: not partially moist above; nor in a state of puddle about the roots (as it is in the ordinary method of watering holes); but uniformly moist: not only in the region of the roots, but below them: the humidity there lodged being drawn up, leisurely, through the soil, by the action of the atmosphere upon the surface; furnishing the roots, in its ascent, with a uniform and *natural* supply of COOLNESS and MOISTURE; both
of

of which, perhaps, are requisite to a full supply of sap,

On the contrary, in a dry season, this requisite degree of coolness and moisture of soil is wanted; and it appears to be an evident duty of the planter to supply the deficiency; which, in most cases, he may, at an inconsiderable expence,—comparatively with the advantage of planting with a moral certainty of success.

In theory, at least, it is good; and the result, at present, of this year's practice, is a strong evidence of the theory being well founded. Such strength of vegetation, from fresh planted trees, I do not remember to have observed. The shoots of the WEYMOUTH PINES and the BALM OF GILEAD FIRS are extraordinary; and the OAKS, although they are badly rooted, having stood some years too long in the nursery since their being transplanted, and although they were exposed to the air and brought eight or nine miles with naked roots, are now most of them breaking out very strong. The LARCHES thrive the worst: but they were moved at a critical time; just as they had begun to break
out

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out into *leaf*; and were, in that state, brought three miles, with roots naked of mold. An *esculus* (horse chestnut) moved in full *bud*, and in a dry parching air, has not yet appeared to be sensible of the removal.

TRAINING. Some considerable share of success in transplanting, evidently depends on judicious PRUNING: not only before, but AFTER PLANTING.

In Norfolk, I observed that hedges cut when they were in full sap—the buds swelling and nearly ready to burst out into leaf—made stronger shoots from the stools, than those cut while the sap was down (see NORF. ECON. MIN. 34.). Young hedge plants, too, I have observed, never succeed better than when they are planted in a similar state.

I account for this interesting fact (for such I believe it is) in this way. If the body of a plant be removed before the approach of spring, the atmosphere, whose action, indisputably, gives motion to the sap of trees*, has only the stumps of the stools to act upon. But if the entire plant be permitted to remain
upon

* The practice of introducing part of a vine into a hothouse, leaving the rest in the common air, is itself a proof.

upon the roots, the influence of the atmosphere, which, according to Dr. Hales, and most probably, is in proportion to the surface exposed to it, is infinitely greater, than in the former case. The entire root is set to work ; every fibril is brought into action ; and the sapvessels are, of course, distended. But before any part of the sap is exhausted, the top is severed, and the whole force of the roots, already full of the nurturing fluid, is spent on the protrusion of young shoots from the stools.

By a parity of reasoning, if, on TRANS-PLANTING a *deciduous tree*, the whole of the branches and twigs be left untouched, until the roots are brought into action, and the vessels of the body of the plant be distended, and filled with sap ; and if, in this critical state of the plant, two thirds, for instance, of the leafbearing wood be removed, the entire force of the roots, with the sap already raised for the use of the whole plant, will, in this case, be expended on one third of it.

Another idea (likewise new I believe) occurred to me, about the same time. In pruning plants for transplanting, it is customary to take off the branches close to the stem ; a practice,

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practice, which, in setting up stationed trees, is always observable; but which, applied to removed plants, either at the time or soon after planting, appears to be erroneous. For, let the success of a removed plant be what it may, its vigour being greatly checked, through the loss of its feeding fibers, its exertions, immediately after removal, are of course less forcible, than they are a few years afterward; when a fresh set of feeding fibers being formed, the plant thereby gains possession of the soil, and a degree of establishment in its new situation.

The first year after removal, plants in general, and in a common season, have barely nourishment enough to preserve life, and none for the cicatrization of wounds; which, if made at the time of removal, have one year at least to lie open. On the contrary, if at the time of removal, the side branches be only shortened to check their growth, and relieve the plant, not taken off close so as to wound the stem, they become instrumental in strengthening the lower part of the stem; which, in a few years, from its increased vigour, and increased proportion of size, is enabled to heal the wound left by the removal of the stump, perhaps, the first year.

Under

Under this idea a principal part of the OAKS were pruned; taking off the smallest twigs and rotten stumps only, close to the stem; leaving the larger branches, with which these awkward plants (the best I could procure) abound, some inches long, according to their respective situations on the stem; leaving the lowermost, though close to the ground, longest, and shortening them, conically, up to the leader; carefully removing every leading shoot and end bud; except the apex of the main leader.

With respect to EVERGREENS the foregoing principles appear equally applicable; though the mode of applying them may be somewhat different. Being in full leaf at the time of removal, it might be dangerous to defer the pruning (where it is wanted and may be given with propriety) too long after planting. Nevertheless, it may be good management to suffer, even evergreens, to stand a day or two before pruning, that an extra supply of sap may be *prepared*.

The PINE TRIBE I invariably LIGHTENED of the extremities of their lower boughs; which, on most of the plants, were singularly abundant;

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abundant ; especially on the SPRUCE FIRS ; some of which were nearly in a globular form : it was difficult, or impossible, to come near enough the roots, to take them up properly, without shortening the lower boughs ; upon which the nourishment of the plants having been expended, their upward progress had been slow.

I was cautious, however, not to take them off too near to the stem, lest they might, by bleeding too much, weaken the plants. But the experience of this year has shewn me, that I might have been less cautious with greater propriety. The WEYMOUTH PINES, which bled the most, make remarkably fine shoots, and this, though they were moved without earth to their roots, and notwithstanding some of them were badly rooted ; one of them more particularly, and which I despaired of saving : but, by a second pruning, I have, I believe, saved its life.

The branches of the LARCHES I have kept shortening, from time to time, as necessity seemed to require, until some of them have not a twig left on their stems, six inches long : yet every PRUNING had obviously its good effect.

But

But the utility of reducing the quantity of surface of a removed plant, was most striking in a *HYPERICUM LEAVED SPIRÆA*; which, having run too much to wood, in the nursery, where it had stood some years, I lightened, considerably, presently after planting. This enabled it to form its buds, and to put on the appearance of health until it began to burst out into leaf; when, the surface becoming too large for the roots, it sickened so much, that I began to despair of it; the tips of the twigs becoming flaccid, and looking dead. I therefore again applied the *PRUNING KNIFE*; taking out half of the wood which remained; cutting off the withered tips; and leaving nothing standing but what seemed yet perfectly alive. The good effect was almost immediate; and is now most striking. Every twig is covered with leaves and *flowers* to the tip! it wears no appearance of a removed plant. For although threefourths of the original wood has been taken out, the elegance of the plant has rather been encreased, than diminished, by the *PRUNINGS*.

I have not yet *STAKED* a plant: notwithstanding some of the *PINES* are eight or ten

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feet

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feet high, and some of the PLANES still higher: yet, notwithstanding there has been some very brisk winds, not a plant has stirred; except a tall badly rooted Weymouth pine, which I never expected to outlive the transplanting; and, even this, never got more than a quarter of an inch of play. By lightening the side boughs, and loosening, and afterward treading, the mould round the bottom of the plant, it now stands perfectly firm; and has already made shoots, three or four inches long.

Nor have I yet WATERED a plant; except one LARCH, and one SORB, which stand in a high dry situation. But even these, I believe, received no benefit from the watering. Their sickness, I apprehend, proceeded less from want of water, than the want of mouths to drink it with. PRUNING the LARCH, more particularly, almost close to the stem, appeared to have a better effect than the WATERING.

To the credit of WATERING THE HOLES BEFORE, and PRUNING THE PLANTS AFTER, PLANTING, there is not, yet, a dead plant.

MAY

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MAY 27. Notwithstanding the myriads of CHAFERS, with which the country swarmed, last spring; and notwithstanding the workmen, in breaking old hedge banks, found numbers alive, in April; there has, this spring, scarcely a chafer made its appearance! One was said to have been seen, on the wing, some weeks ago; I saw one about a fortnight ago; and, yesterday, there were three or four fluttering in the top of an oak, which the woodmen were felling. I asked the fellers if they had seen many this spring. They looked up, and said that those were the first they had seen this year*!

CHAFERS.

To me, this appears to be an inexplicable fact in nature. Supposing them to be annual insects (which their being alive this spring seems to contradict), such numbers as appeared last year would, of course, propagate their species, before they died or laid themselves up.

A a 2

Last

* June 1. I have not since seen nor heard of another!

147.
CHAFERS.

Last year, I conjectured that the long frost had preserved them. But, this recent winter, the frost was of still longer continuance. The most essential difference between the two springs is, last year it was winter one day and summer the next; this, we had hot days with frosty nights and intervening cold bleak winds, during the season in which the chafers usually come forth. These, perhaps, either killed them, in the first instance, or, by benumbing them before they got upon the wing, rendered them obnoxious to birds and vermin.

148.

MISCAR-
RIAGES
in
PLANTING.

JUNE 6. What an awkward season the last has been for planting. At —, —, &c. &c. * how sickly the appearance of fresh plantations. The PINE TRIBES, especially the WEYMOUTHS, are as red as foxes. How much is due to the watering of the soil. In plantation A, there is not yet a "foxy" leaf †.

JUNE

* See note page 90.

† April 1786. The plantations of —, considerably extensive, were cut off, almost entirely; the ground

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JUNE 6. There are not, I apprehend, less than a thousand acres of oak timber now standing in NEEDWOOD FOREST. A quantity of which few other forests of the kingdom can at present boast.

QUANTITY
of
OAK TIMB.

SWILCAR OAK, the father of this forest, girts, at five feet high, twentyone feet. The lower stem, ten feet clear. The whole height, about sixtyfive : the extent of arm, fortyfive feet.

SIZE
of
OAK.

In "BAGOT'S PARK" are some noble oaks: many of them hastening down the stage of decay ! There are several trees which are, or have been, worth twenty pounds a tree.

I measured one, which, *I understand*, goes by the name of SIR WALTER'S WALKING STAFF, and which girts, at six feet high, sixteen feet. The lower stem, nearly clear of

A a 3 boughs,

being replanted, last autumn ; and, through the severity of the winter, many of the plants are now cut off a second time !

149.
S I Z E
of
O A K.

boughs, I estimated at thirtyfive feet; an upper one, at fifteen; and the entire height, at seventyfive feet.

Supposing this tree girts twelve feet, in the girting place of the entire stem, it contains four hundred and fifty feet of timber; which, at four pounds a load, is fortyfive pounds: the outside value of this tree, for ordinary uses. For particular purposes, it may be worth FIFTY POUNDS. *It is said* to have been estimated at SIXTY POUNDS.

A G E
of
O A K.

There has been, lately, a fall of timber in these woods; including some large trees. Counted the rings of one which was found at the butt. The number, as nearly as I could ascertain it, TWO HUNDRED. But the last forty or fifty years growths were so thin, I could not count them with *certainty*; though with sufficient accuracy to ground the following calculations.

G R O W T H
of
T H E O A K.

The girt of this tree, in the girting place, is nine feet, the diameter of which is somewhat more than thirtyfour inches.

The estimated GROWTH, in this part, is *thirty* inches diameter, during the FIRST HUNDRED AND FIFTY YEARS, and *four* inches (two inches thick) in the LAST FIFTY YEARS.

The

The length of the stem twentytwo feet. The CONTENTS of the whole 110 feet of timber. The contents of the first 150 years growths, 85 feet; leaving 25 feet for the growth of the last 50 years.

Therefore, although the encrease of *diameter* has been comparatively small, during the last fifty years, the encrease of *timber* has been nearly as great, as in the first stages.

But supposing this tree had been taken down, at one hundred and fifty years old, it would, at two shillings a foot, have produced eight pounds ten shillings: the interest of which would have amounted, in the course of fifty years, to more than twenty pounds; beside the use of the land, during that time. Whereas the tree, at that rate, is now worth only eleven pounds.

December 1789. Those calculations, and inferences, are not intended to excite a spirit of felling timber, prematurely; a spirit which is already too prevalent; but to endeavour to ascertain the PROPER AGE OF FELLING; it being an incontrovertible fact that, in point of economy, the crime of suffering timber to stand too long is infinitely greater, than

A a 4

that

149.
GROWTH
of
THE OAK.

PRODUCE
of
THE OAK.

AGE
of
FELLING
TIMBER.

149.

AGE

of

FELLING
TIMBER.

that of cutting it down before it has attained its full growth.

In the former case, there is no *waste*; the interest of money, and the succeeding shoots, or the use of the land, stand against the loss of growth of timber. But, in the latter, the principal, interest, aftershoot, and use of the land are all thrown away: so that the community, as well as the proprietor, are losers by the management. In the former case, cutting part before it be fit, may save other trees which are more fully grown; but, in the latter, the whole is lost.

There are men who say that "truth ought not to be spoken at all times:" while others assert, and I apprehend with more truth on their side, that "facts are always valuable." For although a few men may make a bad use of them; men, in general, will apply them to a better purpose.

BOARD
of
RURAL
AFFAIRS.

With respect to SHIP TIMBER, the only article by which the community can probably suffer in a premature fall of timber, it is of much too great importance, in this island, to be left to the caprice of sentiment, and the secretion of facts!

It

It avails not to nurse up SEAMEN, unless there shall be hereafter, *on a certainty*, SHIPS to employ them. If the STATE OF THE NAVY be a fit subject of enquiry, surely the STATE OF SHIP TIMBER is of still more radical importance.

But leaving the PRESERVATION OF SHIP TIMBER to those whom it most immediately concerns, we will proceed to consider WOODLANDS as a species of PRIVATE PROPERTY.

It does not follow, that, because it is wrong to suffer timber to stand to waste, it is right to take it down before it be sufficiently grown, for the purpose of SHIP BUILDING. It is not *overgrown*, but stout *growing* timber, which is fit for that purpose.

Timber is seldom fallen prematurely, but by the necessitous; or by those who have only temporary possession of their respective estates. And what *argument* can prevail with this class of proprietors?

Another class (and I trust by much the largest) is composed of those, who, considering their timber merely as a profitable part of their several estates, take it down whenever it becomes FULL GROWN, and a FAIR OPPORTUNITY offers.

A third

149.
BOARD
of
RURAL
AFFAIRS.

AGE
of
FELLING
TIMBER.

149.
AGE
of
FELLING
TIMBER,

A third class of proprietors of timber consists of those, who, through false pride, false fear, or false economy, suffer their timber to stand till it be **OVERGROWN** * : and if I have any other motive for publishing the foregoing Minutes, on the ages of timber trees, than that of recording facts, it is the desire of placing in its proper light the *improvident* management of this class of proprietors; and, at the same time, to endeavor to form just ideas of a subject, which has not, heretofore, been brought before the public; but which is preeminently entitled to a public discussion.

This subject having been rendered in a considerable degree familiar to me, by nine or ten years observation and practice, I will here set down what appears to me, *at present*, the **PROPER AGES OF FELLING** the four following species of timber;

POPLAR, from thirty to fifty years old.

ELM, from fifty to a hundred.

ASH, from fifty to a hundred.

OAK, from one hundred to two hundred.

Very

* I speak solely of **TIMBER**, in **RECLUSE SITUATIONS**: not of **ORNAMENTAL TREES**, nor even of small **PLOTS OF WOODLAND**, in **PICTURESQUE SITUATIONS**.

Very much depends on SITUATION;—on the SOIL and SUBSOIL in which trees are rooted. On dry absorbent soils, the oak and the elm, at least, are observed to go off much sooner, than in cooler more retentive situations*.

In MEREVALE WOOD,—a dry loam with a rocky subsoil,—we find the OAK going fast to decay, at two hundred years old. In BAGOT'S PARK, a cooler situation, it is found, but unprofitable, at that age. In STATFOLD WOOD, perhaps a still cooler spot, it is found, profitable, and wearing every appearance of being in a fit state to be taken down, at the age of a hundred and fifty years.

149.

AGE
of
FELLING
TIMBER.

150.

JUNE. The OAK (as well as the appletree) has, this year, suffered, in some situations, nearly as much from an insect, which is bred in the leaves, as it did last year, by the chafer.

OAK
INSECT.

Young woods, in every part of the district, are, now, as brown as they were, in winter!

But

* For observations on ELM, see GLO. ECON. i. 42.

150.
O A K
INSECTS,

But *old* woods have mostly escaped; and even in young woods, a tree is, here and there, partially left.

The trees now swarm with the flies, just released from the chrysalis state: a kind of semi-beetle. The size nearly that of the common horse fly, but somewhat longer: two orangecoloured, semicrustaceous wings, above, with a pair of transparent ones, resembling those of the common fly, beneath them: a common insect*.

151.

HUMAN
WANTS!

JUNE 26. I lately sold a parcel of "cordwood" to a "Jersey comber," who employed a poor old man to burn it for him, on the spot, at eightpence a quarter, and *board!* which, however, did not cost him much. The poor devil had sometimes bread, and sometimes cheese, and sometimes neither, with seldom any thing but water to drink!

His *lodging* cost him nothing. He built himself a hut, with slabs and sods: a cone,
seven

* But, neglecting to preserve a specimen of it, I have not yet been able to identify its species.

seven feet wide at the base, on the inside ; and four feet high, in the center : placed on the northside of the hearth, with an opening toward it and the south. The floor divided by a long log : one side littered with straw, for a lodging room ; the other furnished with a loose log, as a sitting room. A faithful bitch was his guard : locks and bolts of course unnecessary.

How few are the “ necessities of life ! ” the real wants of mankind ! When did they, or where do they now, live in a lower state of “ simplicity ” than this ?

The METHOD OF “ BURNING ” was similar to that described in MIN. 127.

The roots and “ chumps ” in the center ; the large long wood next ; covering with the smallest and cleanest of the sticks ; filling every chink, as close as possible ; placing the convex side upward ; forming the heap into an exact semi-globe, with a chimney at the pole ; at which the pile is fired with the driest smallest pieces ; being previously tiled, or scaled, with fods inverted ; with which even the top of the chimney, and every other part,

151.
HUMAN
WANTS!

CHARRING
WOOD.

151.

CHARRING
WOOD.

part, is solicitously covered; and the covering as assiduously repaired, as occasion renders necessary; that as little as possible of the inflammable matter may escape.

The center *consumes* first; the outskides or skirts of the base the last; the fire expanding itself leisurely to its very circumference: a declaration, this, that the whole is burnt.

If it do not burn freely, holes are made round the base, and in the lower part of the pile, with a stakelike pole, to let in air. If the wind blow strong, the fire is carefully defended from it, by moveable screens, placed on the windward side of the pile.

MANURE.

The quantity of ASHES arising from a charcoal hearth is considerable. There has been already four cart loads taken up from two small hearths, and a load or two more remaining.

“CHARCOAL ASHES” are in good esteem, here, as a manure; particularly for turneps, and for fining grassland. They arise principally from the sods used in covering; but, in part, from the bits of coal which break off in raking it out of the ashes.

Query,

Query, are the ashes of the fods improved as a manure, by having been in immediate contact with phlogiston in a state of agitation ?

151.
MANURE.

152.

JULY 1. Weeding the young shoots from the stools of one of the hedges cut down last spring. See MIN. 32.

WEEDING
HEDGES.

In a part where *thistles*, *nettles*, *meadowsweet*, *hair-of*, *catlock*, &c. were numerous and strong, so as to have outgrown the shoots, they are drawn up weak, and have received much injury. But where the shoots are vigorous and the weeds few, the injury yet received is little.

Hence, young hedges, if very weedy, should be weeded twice: if not, this perhaps, is the best time.

Great care, I find, is requisite in weeding young hedge shoots. They are brittle as glass; and a little roughness of handling is liable to break them off at the stub. They ought not to be pulled aside; nor to be weeded over-hand. The weeds should be drawn
out

152.

WEEDING
HEDGES.

out at the bottom, by putting the hand, or for want of room the fingers, in neatly between the stubs.

Moved the thorns (placed as a guard) out of the ditch, with a fork; trimmed the face of the hedgling, with a hook; also cutting, with the same useful instrument, some of the strongest weeds, in the vacant places; drew out the rest, by hand; went over the face again, with the hook; and returned the thorns into the ditch.

Four acres (one hundred and twenty-eight yards) took an old man and a boy, with some of my own assistance, half a day. Moving the thorns was nearly half the labour. One man, expert with the hook, would have done the whole in a day. The cost about fourpence an acre, or eight yards for a penny. The appearance is worth the money; and the use, ten times the cost. Yet, perhaps, not one fallen hedge in a thousand, throughout the Island, is weeded.

RENEWING
OLD
HEDGES.

By way of experiment,—RIPPLED the vacant places of the BANK, at the time of cutting this hedge; which, through age or improper

proper treatment, had become thin of stools; in some places, three or four feet from each other. This was done by running the point of a peck, repeatedly, along the face of the bank, about the "quicking place"; leaving an open gash, or drill, three or four inches deep, between stub and stub, in two or three different places; finally drawing the point of the tool leisurely along the bottom of the chasm; pulling out the ends of the fibers, broken in making it, to the surface; in order to receive the benefit of the air, sun, and moisture the drill may catch; and by that means encourage the roots, with which almost all old banks are furnished, to throw out suckers into the vacant places.

The season has been very much against the success of the experiment; and, on examining the drills, today, I can find only one sucker. This one, however, is agreeable to the true intention; springing from one of the exposed fibers, about the size of a straw; having broke out a little above the ground, and about an inch from the fractured end of the fiber. The sucker a blackthorn, six or eight inches high *.

JULY

* To fill up these vacancies with still greater certainty, I sowed, the ensuing autumn, HAWS and HOLLYBERRIES in these drills, which were then extended from end to end of the hedge.

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B b

152.

RENEWING
OLD HEDGES.

153.

153.

PRACTICE
in
PLANTING.

JULY 4. (See MIN. 146.) Notwithstanding the season for young plantations has been such as has rarely perhaps occurred, I have not, literally speaking, yet a dead plant !

Six of the OAKS, however, have lost their tops ; but all of them are visibly alive at the root ; except one, which, considering as dead, I pulled up, to examine the quality of its root ; on which I found a ring of young shoots, two or three inches long ; but which had not yet reached the surface of the ground. The other five I sawed off a few inches above the surface ; immediately above the shoots which they have there thrown out.

The root which I drew up has a sufficiency of branches and fibers to have done well ; and the earth about them is sufficiently moist ; but they proceed from a strong *taproot* full as thick as the stem ; and it is probable that these six, and perhaps many other of these oak plants, have never been tapped.

Yet, except these six, and five or six more, which, though the tops are alive and full of leaf, have made little or no shoot, such progress from removed plants I never observed.

One

One of the OAKS has made a shoot of fifteen inches ! and several of them have shot eight or ten inches ; with leaves as numerous, and as large, as those of stationary trees.

The progress of the PINE tribe is not less remarkable. The WEYMOUTH PINES, in general, have shot from six to twelve or fourteen inches ; and the BALM OF GILEAD FIRS, full as much. Some of them have made longer shoots, this year of removal, than they did last, undisturbed in a rich garden mold.

153.
PRACTICE
in
PLANTING.

154.

JULY 16. The DECREASE OF TIMBER, in this country, has been great, within memory. Old Barwell remembers “ a great deal of rare timber taken down, and a many woods stocked up.”

QUANTITY
of
TIMBER.

Some years past, he says, people were aware of a growing want ; and some monied men bought up timber, on speculation. But they all sunk money by the adventure. For the same apprehension induced others to bring a supply of FOREIGN TIMBER into the coun-

154.

QUANTITY

of

TIMBER.

try—"and this foreign deal knocked down the price lower than it was before."

Indeed, it is demonstrable, that while an unlimited supply of foreign timber can be had, as it may at present, the price of BUILDING TIMBER can never get above a certain height; and a real want cannot, of course, be experienced. For, while that circumstance lasts, if there were not a tree left standing upon the island, the price and plentifulness of BUILDING TIMBER would be nearly the same as at present.

But, with respect to SHIP TIMBER, the case is very different. Timber of equal value with our own cannot, perhaps, be purchased, at any price. Beside, the moment we become dependent on a FOREIGN SUPPLY of SHIP TIMBER, that moment the Island becomes dependent on any power who may obtain the dominion of the sea. For, this obtained, that power may dictate to the British nation the quantity of shipping they shall thenceforward maintain;—or any thing else, that superior power may be pleased to dictate.

An ISLAND without shipping is a castle without walls; and a CERTAIN SUPPLY OF SHIPS can be had, in PERPETUITY, through
an

BOARD
of
RURAL
AFFAIRS.

an INTERNAL SUPPLY OF SHIP TIMBER,
alone.

How much, then, it behoves this nation
to render, by every human precaution, an in-
ternal supply CERTAIN, and PERPETUAL.

154.

BOARD
of
RURAL
AFFAIRS.

155.

AUGUST 3. See MIN. 123. The hedge-
wood having overcome the YOUNG OAK
PLANTS, I have given them headroom,—
by putting a trimming hook, edge-uppermost,
in between each oakling and the adjoining
plant of hawthorn, on either side, and strik-
ing it perpendicularly upward, close to the
stem of the quick; taking off all the lateral
branches, on the side next the oak: con-
sequently, leaving this a clear niche, six or
eight inches wide, to rise in.

TRIMMING
HEDGEROW
TIMBER.

Thus guarded on the right and left, and
hemmed in, behind, by the bank and hedge,
the plants have no opportunity of throwing out
lateral branches, except in front; and they
being, there, struck off, whenever the face
of the hedge is trimmed, the oaklings thus

B b 3 situated,

155.

TRIMMING
HEDGEROW
TIMBER.

situated, must, of necessity, acquire an upright tendency.

Putting the fifty or sixty plants in this desirable situation afforded me barely half an hour's rational amusement.

How little is the labour of training hedgerow timber. It is the setting about it, in which the principal difficulty lies.

156.

CULTURE
of
WOODLAND.

AUGUST 28. (See MIN. 124). Made a wider circuit in North Warwickshire. Still the woods appear to be *made*; and, probably, in a similar way to those of Hall End. Some of them not more than forty or fifty years old.

Soils will ever find, in process of time, their proper produce. And it is no wonder the North of Warwickshire should abound with wood, or that the District of the Station should be, in a manner, destitute of this species of PRODUCE. That is, a cold soil, ungenial to AGRICULTURE, but productive of wood; especially the OAK; and has probably been found,

found, for ages past, to pay best in wood-
LAND: This, on the contrary, a warmer better
soil, which, in the experience of ages, has
been found to pay best in CORN and GRASS.

Making, or unmaking, a piece of wood-
land is no light matter; and, probably, is
seldom set about, without due consideration
of the effect.

Farther, it is probable, that the present
woods of Kent, and other counties, are not
the remains of ancient forests, or other ex-
tensive woodlands; but have, heretofore,
been *cultivated*.

It has been shown, above, that it is now,
or has lately been, the practice of North
Warwickshire to raise woods, by sowing and
planting acorns; and it is highly probable,
that a similar practice has formerly prevailed
in other parts of the Island. How common,
in Yorkshire, and in other places, to see
middleaged growing woods, without a break,
or an old decayed tree in them: the whole
wood appearing nearly of the same growth;
yet no trace of a stub, or stool of fallen tim-
ber. These woods are not, probably, the
productions of chance; but have been assisted

B b 4

by

156.

CULTURE
of
WOODLAND,

156.

CULTURE
of
WOODLAND.

by the hand of cultivation : either by sowing or planting acorns; or by training the fortuitous seedlings of roughets, or worn out woods.

The foil of Statfold Wood, one hundred and fifty years old, lies in high wide ARABLE RIDGES; and I have observed other woods, in which CULTIVATION is equally demonstrable,

157.

SITES
of
PLANTING.

SEPTEMBER 3. A dispute arose, today, in the conversation of professional men, on whether laying up foil in HIGH RIDGES does, or does not, produce an encrease of *land*.

Mr. ——— was clearly of opinion that it does. His argument, however, was chiefly founded on an encrease of *surface*.

Others were of a different opinion; arguing that the plants of corn (the produce in dispute) have no more *headroom*, growing on the hypotenuse, than they would have if growing on the base of the ridge.

Mr.

Mr. ——— however, to maintain his argument, threw out a good thought. He said, that admitting the plants, themselves, had no more headroom, their roots had, severally, more *soil* to feed in: a new, though, when known, an evident idea. There is not only an encrease of surface, but, indisputably, an encrease of CULTIVATED MOLD.

157.
SITES
of
PLANTING.

It has ever struck me that the produce of GRASSLAND, especially in a state of PASTURAGE, is increased by high ridges: but it never occurred to me, before, that CORN CROPS were, in any way, benefited by them.

In attending, however, to this conversation, I am led to believe that, supposing the soil to be *wholly occupied*, they are benefited in a twofold way: the ROOTS have an encrease of PASTURAGE, and the EARS an encrease of AIR. The SURFACE OF THE EARS is encreased exactly in proportion to the SURFACE OF THE SOIL *. And the SIDES

OF

* I do not mean to recommend the practice of laying land up into high ridges; but to bring forward facts which may not be generally seen. And it is a fact, as evident

157.
SITES
of
PLANTING.

OF HILLS are circumstanced, in this light, similarly to those of artificial ridges.

These reflections lead to a practical idea in PLANTING;—not only STEEP HANGS; but the sides of more gentle SLOPES.

The quantity of SOIL, and the quantity of CANOPY*, correspond with the hypotenuse or slope, not with the level or base of the hill.

The STEMS, of trees as of corn, may be said to become crowded, in such a situation, compared with those of trees planted at the same superficial distance, on level ground; but, while the ROOTS have equal SOILROOM, and the TOPS equal room to throw out BRANCHES and form a FOLIAGE, it matters not, I apprehend, whether the stems happen to rise at ten, twenty, or thirty feet, from each other. The STEMS, it is true, have a natural propensity to rise perpendicularly to the horizon; but the ROOTS and BRANCHES have no such tendency. The head of a tree inclines to the

evident as those stated, that the soils of high ridges are seldom, if ever, wholly occupied. See GLO. ECON, i. 79.

* See PLANT. and ORN. GARD. p. 526,

the air and light ; and its roots strike in every direction, in search of food.

Thus, suppose a slope to be of such a degree of steepness, that the hypotenuse is twice the length of the base,—it is evident, that the plants, growing on this slope, would have exactly double the quantity of soil and headroom, the same plants would have (supposing the slope cleared away and the hill to be made perpendicular) growing on the base ; and exactly the same quantity of soil and headroom, the same plants would have, growing on a plain of equal extent to the slope, or twice the extent of the base.

Hence, for the purpose of growing **TIMBER**, the **SIDES OF HILLS** appear to be equally valuable as **PLAIN SURFACES** ; provided the **SOILS** and **SUBSOILS** be equal.

158.

SEPTEMBER 4. The purchaser of the **MEREVALE TREES** is said to have sold one of them—a rough coarse stick—for twentyfive pounds; for the shaft of a windmill : whereas,
for

157.

SITES

of

PLANTING.

**CONVERT-
ING
TIMBER.**

158.
CONVERT-
ING
TIMBER.

for ordinary uses, this tree was not, perhaps, worth half the money.

How much depends on a mature judgement, in the DISPOSAL OF TIMBER. A novice, finding this stick fit, neither for "*cleft*," nor for *beards*, might have sawed it up into *building scantling*, and have sold it for one third of its value as a *millshaft*.

SITES
of
PLANTING.

The length, size and value of this timber show how eligible and profitable it is to propagate WOOD upon ROCKY HEIGHTS; more especially, perhaps, upon broken, open rock, as the Merevale Hill appears to be: for the air having a free circulation, through the fissures of the rock, the roots are encouraged to strike deep; and, at the greatest depth, may find, especially perhaps on the side of a hill, the requisite supply of air.

159.

ROOT
of the
HAWTHORN.

SEPTEMBER 15. In this neighbourhood, in the face of a gravel pit, which has been worked too near a young hedge (ten or twelve years old) there is a striking instance of the

roots

roots of the HAWTHORN, when exposed to the air, taking upon them the office of *branches*; putting forth shoots and leaves; instead of fibers and fibrils.

159.
ROOT
of the
HAWTHORN.

I took a specimen of a downward root, which, though I broke it off a foot below the crown, and again at the bottom of the pit, where it was still as thick as a straw, measures five feet in length (the subsoil in this case being not a direct gravel, but a loose gravelly rubble) and is furnished alternately, as it happened to be exposed, with *twigs* and *fibers*.

Hence RIPPLING THE BANKS of OLD HEDGES promises much advantage. See MIN. 152.

RENEWING
HEDGES.

160.

OCTOBER 3. The HEDGES on the South and East sides of No. 1. are fourteen feet high, and fifteen to twenty feet wide. See MIN. 102.

HIGH
HEDGES.

On half the headland and half the sideland, lying under these hedges, the barley is yet as green

160.
HIGH
HEDGES.

green as grass, without any prospect, now, of its ripening. I am therefore mowing it as green herbage, for the horses: and on the other halves of these lands, as well as some considerable way into the area of the field, the barley, which has been cut, as corn, is in a manner totally spoilt, for want of sun and air.

Had these hedges been only four or five, instead of twelve or fourteen, feet high, the whole would have been nearly in the same state as the area of the field. The loss on this crop only, through the FOLLY OF HIGH FENCES TO ARABLE FIELDS, is not less, perhaps, than three or four guineas.

161.

GEN. MAN.
of
HEDGES.

OCTOBER 22. The barley being still in the field (see last Minute) and the leaves of the hawthorn beginning to fall, cut down the hedge to the fourth; the greater nuisance.

From written as well as parole evidence, these hedges are fiftytwo or three years old.

It is equally certain, that they were plashed about thirty years ago, the first cutting; and that

that they have not since been touched ! Cut only once, and then partially, in fifty years !

The consequence is, the LIVE STOOLS, now, are many of them three feet asunder, and, in several places, a cart might pass freely through between them : one of the vacancies nine feet wide ! and this notwithstanding a better SOIL, for the maintenance of the HAWTHORN, does not exist : a rich hazel loam. The treelike stems are as straight as arrows, and, notwithstanding their age, are still perfectly clean ; though some of them are twelve or fourteen inches in diameter ; yet they still wear the appearance of luxuriance. Even some of the plashers had swelled, as thick as the leg, before they died ; and there are numbers of *smothered stems*, as thick as the arm ; most of *these*, it is observable, having large plashers upon them.

Had this hedge been CUT THREE TIMES, instead of ONCE, in the last THIRTY YEARS, most of these smothered plants would have been alive, and the number of live stools treble what they are now.

Had this hedge been kept FENCEHEIGHT, during the last FORTY YEARS, a still greater
num-

161.

GEN. MAN.
of
HEDGES.

161.
GEN. MAN.
of
HEDGES.

number of stems would, now, have been alive; the state of the fence infinitely preferable to what it is at present; and the produce of marketable grain on each side of it, twice perhaps what it has been, during the last fifteen or twenty years.

I am equally clear in my opinion, that, had this hedge been kept, and were it to have been continued, one hundred and fifty years longer, in that state (refreshed from time to time, perhaps, by felling to the stub) it would at TWO HUNDRED years old, have been a *younger* hedge, than it is, now, under the treatment it has received, at FIFTY: when in fact, it is no longer a live fence; nor ever can be made such, without raising fresh stems in the vacancies! Instead of two, I might, I believe, have set down five hundred years.

There appears to be a general rule, in the pinfallow practice, and on the productive lands of this district, with respect to live hedges:—Fell whenever the turf is broken up. . See MIN. 131.

OCTOBER

OCTOBER 22. The foregoing enquiries led on to a subject, which, like that of *high ridges* (see MIN. 21.), has been held out as a proof of the folly of past generations.

ORIGIN
of
CROOKED
HEDGES.

It has long appeared to me evident, that the lands, which we find divided by CROOKED HEDGES, have been inclosed from the FOREST STATE, without having been previously *cleared* of their *woodiness*, as COMMON FIELDS. But why the fences should wind in the serpentine manner, in which we frequently see them, never appeared to me obvious: indeed, I have hitherto considered this circumstance, as others have done, to proceed from a want of method, or a want of attention, in our forefathers.

My rustic oracle, however, explained, in this, as in the other case, (see as above) the *motive* of their conduct: “ they followed the live stuff!” a most *probable* idea.

The first inclosers *cleared up to the thickets*; traced the *line of impenetrable underwood*; whether it happened to run in a *straight* or a *crooked* direction:

162.
ORIGIN
of
CROOKED
HEDGES.

direction : by this means gaining, without cost, or at a small expence of making good the interspaces, a fence to prevent their stock from straying.

Those who followed (or they themselves in making other inclosures) cleared up to this first line of fence ; for the double purpose of getting all the land they could, and a fence free of cost. The first fences were of course kept up (for their own conveniency), and have, in much probability, been ever since kept up, by the first inclosers. And hence, probably, the ORIGIN of PROPERTY in FENCES.

Thus, without the trouble or expence of ARTIFICIAL FENCES, living or dead, the lands became divided, in the most *simple* and *natural* way.

Shame on LEARNING and SCIENCE, to let an ILLITERATE RUSTIC outdo them in penetration and common sense !

How many interesting, and no doubt valuable ideas, die, not with farmers only, but with their workmen ! and how evidently eligible to arrest them, and, at least, *prolong* their existence.

DECEMBER

163.

163.

DECEMBER 15. (See MIN. 139.) Yesterday, came on the sale of the ASH and ELM, with some POPLARS, scattered over different parts of this estate:

SALE
of
TIMBER.

The circumstance most noticeable, respecting this sale, is the extraordinary price at which the POPLAR sold: fetching twelve to fifteen pence a foot, rough and smooth! notwithstanding the current price, in this neighbourhood, previously to the sale, was only eight pence or nine pence a foot:

POPLAR.

The ordinary use to which POPLAR is here put, is that of FLOORING BOARDS. But the trees sold yesterday were bought for "PACKING STUFF" for the hardware manufactories; poplar being in the first esteem for packing cases: a strong inducement for planting POPLAR in this inland manufacturing country.

164.

1786. FEB. 15. VEGETABLES, in their nature, are liable to great inconveniences
C C 2 with

SITE
of
PLANTATIONS.

164.

SITE
of
PLANTA-
TIONS.

with respect to moisture. They cannot, like the animal creation, repair to the brook and moisten their aliment, at will. Their viscera are wet or dry, according to the season, and the situation in which they are fixed.

Hence it becomes the especial care of the rural economist to place them in situations suitable to their respective natures.

VEGETABLE
ECONOMY.

Some SPRUCE FIRS, which are naturally the inhabitants of MOUNTAINS, but which have been injudiciously planted in a COLD WET SWAMP, furnish an instance in point.

Last year, which was *very dry*, they made long vigorous shoots, and were of a dark green healthy colour. This, a *wet* season, they are become yellow and sickly; some of their heads pale, and beginning to flag: not more perhaps through the WETNESS OF THE SEASON, than through an UNNATURAL LUXURIANCE OF HABIT, requiring an extraordinary supply of that aliment which the wateriness of their viscera has rendered innutritive. On removing these plants, for transplanting, the holes fill with water.

Had these plants been placed in a situation of a temperature suited to their particular constitution, a season excessively wet, or excessively

cessively dry, would, equally, have checked their growth, without deranging their habit, so as to render it liable to the attack of a contrary season.

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VEGETABLE
ECONOMY.

165.

MARCH 9. The OAK TIMBER of Statfold (see MIN. 139.) has been CONVERTED, chiefly, into the following articles.

CONVERT-
ING
TIMBER.

“BUILDING STUFF:” some of it carried away in the round: some cut up, on the ground.

“NAVIGATION STUFF:” all converted on the ground; and carried as far and some of it farther than Birmingham; eighteen or twenty miles.

“MILLWRIGHT STUFF:” the crooked trees, most especially.

“COOPER’S STUFF;” as *flaves* and *heads*, of different sizes.

SPOKES. The “strongest,” cleanest, very best of the timber, particularly the straight clean butts of the hedgerow trees, were cleft into this species of ware. For hind wheels, two feet ten inches, for fore wheels, two feet

C c 3

four,

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CONVERT-
ING
TIMBER.

four, long; about four inches wide; and two and a half inches thick: all clear heart; without a straw's breadth of sap adhering to it. If through necessity, or accident, a cleft prove too thin for a spoke, it is shaped into such cooper's ware as it will make; or into "heart laths."

LATHS: both *heart*, and *sap*: the sap of cleft wood being mostly, I believe, converted into this ware.

LOCKSTOCKS, The *squarings* of the buts, and the lengths too short for cooper's ware, are cleft and moulded into lockstocks: thus turning to a valuable account, that which, in most places, becomes, for want of the thought or for want of a market, an article of fuel. The prices, from a penny to fourpence or fivepence each; according to the size. The purchasers, the locksmiths of Wolverhampton, Birmingham, &c.

BARNFLOOR PLANK: two to two and a half inches thick.

FLOORING BOARDS: lined out inch and quarter.

"COFFIN SIDES:" half inch.

"STUMPS AND RAILS:" posts, five and a half to six and a half feet long: rails, eight
to

to ten feet. The price, high : fourpence to sixpence *each*.

“COALWOOD :” all sold to the “iron-masters.”

“KIDDS :” sixteen to eighteen pence a score. Sold chiefly to the farmers and cottagers of the neighbourhood. The price low ; coals being cheap.

The only circumstance which has struck me as being noticeable, in the manual labour of converting, is that of most of the cross cuts being made by *one* man ; with what is here termed a “frigbob saw :” even cuts of two feet diameter were made singlehanded with these saws ; which, I understand, have been in use, in this district, about thirty years *.

C c 4

MARCH

* TWO-HANDED SAWS. These instruments are generally made by cutting an old pit saw into two, or by cutting off one end of an old crosscut saw : but they are also made, new, at or about Birmingham. The dimensions of one of *these* are as follow : four feet three inches long : eight inches wide, at the handle end : five inches, at the point. The handle, a pin, about a foot long ; fixed in the eyes of two rods, riveted to the side of the saw, and projecting from its end four or five inches ; the upper end of the handle standing up a few inches above the back of the saw.

One man, *standing above his work*, will do nearly as much, with one of these tools, as *two* men usually do, with a common crosscut saw.

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CONVERT-
ING
TIMBER.

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E L M;

MARCH 9. (See MIN. 163.) The ELM fell much better than was expected. The hedgerow elms—some of them very large—two and a half to three feet diameter—sold at an inferior price; under an idea that they were tainted.

AGE
of
TIMBER.

By the number of rings, these large elms appear to be about ONE HUNDRED and TEN years old.

Therefore, in a well soiled cool situation, elms may stand safely until they be a hundred years old (see MIN. 149.). But some of these being, evidently, overgrown, I am clearly of opinion that they can seldom remain on their roots, with strict economy, after they are that age.

A S H.

The ASH, too, has fallen better than was expected; especially at the *bottom*. Several trees whose tops were bored by the woodpeckers, and are, there, really tainted at the heart, are nevertheless sound at the root!

The timber, however, of most of them is complained of as being "short:" and taking them, together, they are much overgrown.

The

The number of rings, of one of the wood ashes, eighteen inches in diameter, is, very distinctly, ONE HUNDRED and TWELVE.

Therefore these ashes, situated as they are on a cool retentive subsoil, were *full* grown, and many of them no doubt overgrown, at one hundred years old. It is not solidity, but toughness, which is wanted in ASH TIMBER; and toughness belongs solely to youthful growing trees. And from this instance of experience it is probable that ash, for the uses of HUSBANDRY, can seldom stand with propriety a HUNDRED YEARS.

Another observable circumstance, incident to this wood, is the disparity in the AGES of the OAK and the ASH. The oak (see MIN. 139.) one hundred and fifty; the ash one hundred and twelve.

Hence, it is more than probable, that the idea of the ash being raised with the oak, as a shelter or nursery on the north sides of woods (see vol. i. p. 100.) is ill founded.

In the wood under notice, which has evidently been *cultivated*—the land lying in wide high arable ridges—the ash has, in much probability, been *planted in the vacancies of the*
young

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AGE
of
TIMBER.CULTURE
of
WOODLANDS.

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CULTURE
of
WOODLANDS.

young oak wood: and these vacancies it is reasonable to suppose were largest, and most numerous, on the side most exposed to the severity of winter. And the same circumstances may have taken place, in other woods.

Be this as it may, the idea of filling up the vacancies of an oak wood with albes is self-evidently good. Their upward growth is more rapid than that of the oak: and their superiority of value consists in a straightness and length of stem. The ashes of Statfold Wood are, in general, from forty to fifty feet in the stem.

FALLING
TIMBER.

These trees, therefore, *FELL*, of course, without much injury; there being few large spreading heavy arms to rend them in the fall (see page 336.): nevertheless, a forked tree, thirty feet stem, and two and twenty inches diameter, was split, from the fork to the root, in falling! the largest heaviest arm falling uppermost. A further evidence of the caution requisite in taking down timber trees,

TRAINING
TIMBER.

It is likewise worthy of notice, that the rent of this tree discloses a *STUMP* four or five inches diameter, and about the same length, which appears to have been cut off when the
tree

tree was about ten inches diameter; and had been, of course, buried by the succeeding growths; the stem appearing now on the outside to be clean; the stump being drawn out from under the outer growths.

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TRAINING.
TIMBER.

This, among a thousand other instances, shows the propriety of PRUNING TIMBER TREES, and of cutting the boughs *close to the stem* *.

This stump is situated about halfway up the present stem. Had not the bough, which gave birth to it, been taken off, the clear stem would have been only half the length it now is. Had it been taken off when it was the size of a walking cane, and, then, close to the stem, its power of injury would have been entirely removed.

How absurd the idea that timber trees should not be touched with the pruning tool! and doubly absurd when extended to the ash.

APRIL

* See NORF. ECON. also PLANTING, &c.

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GROWTH
of
THE OAK.

APRIL 17. This morning, went to see the MIDDLETON OAK, on the estate of LADY MIDDLETON, of Middleton in Warwickshire.

It measures, at three feet high, twenty feet in circumference; at five feet, seventeen feet; the height of the lower stem, twenty-five feet; with an upper one about fifteen feet: the whole height about sixtyfive feet. The extent of arm (nearly equal on every side) forty to fortyfive feet. When in full growth, its outline must have been beautifully conoidical; and its whole form peculiarly grand.

At present, its top is going to decay; but its stem wears every appearance of being sound; and is deemed to be so, by the timber merchants of the district: one of whom *bade*, a few years ago, FIFTY POUNDS for this tree.

Admitting the mean circumference of the lower stem (from the ground up to the first boughs) to be sixteen feet, this alone contains ten ton of timber; which, at four pounds

pounds (a low valuation for timber of this size) amounts to forty pounds : and the upper stem and the topwood cannot be worth less than ten, perhaps twenty, pounds more.

The Middleton oak, viewing it in the joint lights of ORNAMENT and USE, exceeds every other oak I have yet observed *.

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GROWTH
of
THE OAK.

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LONDON, 1790, MARCH 23. My own practice in PLANTING and RURAL ORNAMENT, during the autumn of 1785, and the spring of 1786, I set down in a distinct series of memoranda; from which I now select, for publication, the more USEFUL part of the information they contain; reserving what relates more especially to ORNAMENT, (together with other MINUTES on the same subject) until a more suitable opportunity may offer.

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in
PLANTING.

Statfold,

* The soil in which it stands is a rich deep loam; the SUBSOIL a fertile red clay, provincially "marl;" a large "marl pit" being near it.

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in
PLANTING.

Statfold, 1785, October 4. Began to gather ACORNS; for an intended plot of oaks (to be raised from the seed, in rows); for the interspaces of plantations; and for the banks of hedges, newly made, or lately renewed by felling to the stub. The crop, very partial, and, on the whole, very deficient this year.

October 22. Sowed the intended plantation C. with WHEAT; among which ACORNS are intended to be dibbled, in rows. See PLANT. and ORN. GARD. p. 512.

FENCES.

October 24. Began to "table" the new FENCE of this plantation, by throwing down the soil of the ridges, across which the line of the fence runs, into the furrows; by this means bringing the table or offset, behind which the quick will be planted, to the required level; and by doing this, now, to give the base of the bank, in the furrows, time to settle firmly, before the hedgewood be planted, and the upper part of the bank be set on, in the spring.

November 4. ACORNS are not to be had, this year! I have sent out different parties, and have offered any price; even five shillings a bushel;

bushel; yet have not been able to collect more than half a bushel! This is the more vexatious, as the ground is prepared, and the season favourable for putting them into it.

ACORNS, as other fruits, appear to be liable to blights. The north sides of trees in general, have this year missed; while, on the south sides, some trees are full of fruit.

There were several trees, on this estate, loaded on their south side; and from these, alone, I made certain of a supply. But before they were ripe enough to part from their husks, either by agitating, or even beating, the trees, they were picked off by rooks; which, through the general scarcity, were collected upon them in numbers. I have seen twenty or thirty fly from the same tree, many of them with acorns in their beaks; but so voracious they are of this fruit, they have returned to the tree while I have remained under it! so that nothing but a constant guard, under each tree, could have saved them.

November 17. Began AUTUMNAL PLANTING, in plantation E. with DECIDUOUS TREES,

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TREES, from ——— nursery, and SPRUCE FIRS, from the swamp plantation. See MIN. 164.

The soil in this case a somewhat light sandy loam, in sward ; DOUBLE DUG eighteen inches deep ; burying the sward under the bottom spit ; at fifteen pence a rood of sixty-four square yards ; about sevenpence a statute perch ; or four guineas and a half an acre.

Part of the subsoil, in this case, being of a gravelly nature, it was obliged to be loosened with a mattock. But, in general, the top and bottom soils worked equally well ; and, *for whole ground*, four guineas and a half an acre may be considered, on a par of soils, as a moderate price for DOUBLE DIGGING, eighteen inches deep.

Supposing plants to be put in, a quarter of a rod apart, the cost of DOUBLE DIGGING, even at five pounds an acre, does not amount to a halfpenny a plant. And DIGGING HOLES, only, is worth in whole ground, even for low plants, a principal part of the cost. How absurd, then, to risque the life and prosperity of plants, to save so inconsiderable an expence ! A HOLE,
in

in retentive soils, becomes, in a wet season, a mere water cistern : DOUBLEDUG GROUND, beside being equal to a bed of MADE EARTH, in absorbing and retaining a due degree of moisture, is a universal drain to carry off, from the immediate region of the roots, that which is superfluous. The plants (in ordinary cases), planting, fencing, and nursing, may be laid at ten times the extra cost of double digging ; yet upon this the success or miscarriage of the plantation may be said to depend : and to omit it appears, to me, most unpardonable management.

November 21. Even tall plants may be set out with a degree of safety, without STAKING ; provided they be judiciously trimmed, and be firmly and not too superficially planted.

Some ELM SUCKERS, twelve or fourteen feet high, and in a manner rootless, which I saved out of a hedge lately stocked up, and planted in a nursery ground, to give them an opportunity of furnishing themselves with roots, all, except two, retain their upright posture ; notwithstanding a heavy squall of

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PLANTING.

wind with rain took place the night after they were planted.

In doubledug ground; plants from four to eight feet high, with a common length of root, may be planted with a degree of certainty, WITHOUT STAKING.

In whole ground, as ORCHARDS, it is necessary that the plants should stand level with the cultivated soil, or somewhat above it; and STAKING, in that case, becomes indispensably requisite.

Different species of plants may require to be set in, at different DEPTHS: as the ASH and ELM, for instance, ought perhaps to be planted shallower than the OAK: but, from the experience I have hitherto had, I am of opinion, that any plant may be set, with safety, upon the subverted topsoil of double-dug ground.

November 22. Yesterday, a smart FROST and a bleak wind gave a check to planting. Last night, another smart frost;—but the day clear, and the sun warm: though the air is evidently frosty. Nevertheless, I have ventured to continue planting, IN FRESH DUG HOLES.

The

The holes dug yesterday, &c. were not sufficiently thawed, even in the afternoon, to venture the plants in them; and with some degree of reluctance I have planted in fresh holes: for the crust of frozen mold in the surface, being mixt injudiciously with the rest, it was difficult to keep it from the roots.

But, from today's experience, I am of opinion, that plants may be safely REMOVED, in weather MODERATELY FROSTY; provided the sun break out to mellow the air; and provided the crust of frozen mold be laid on one side of the hole, and thus kept away from the roots. I cannot, at least, perceive any *reason* why planting under these circumstances should be ineligible.

November 24. MOVING SPRUCE FIRS: the distance about a quarter of a mile. Carried ten upon a large SLEDGE, drawn by two horses. The plants six or seven feet high, with balls of earth to them, as much as two men could well lift.

To have carried them singly, between two *men*, would have been an endless labor: and to have got them into *carts*, would have torn the balls of mold to pieces; beside, an ordinary cart would not have contained more

D d 2 than

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than five or six at once; and the labour of loading would have been tenfold that of lifting them in and out of the SLEDGE: a most useful, though unfashionable, implement.

November 28. TURNING IN plantation A. to prepare it for acorns; and forming a winding PATH through it, a yard wide; by merely paring off the outsides; throwing the parings into the hollows before turning in; leaving the pathway round in the middle, to keep it dry enough to tread in wet weather.

A man would form a furlong a day, in this manner; and a path of this kind is all that is wanted, in a *useful* plantation, at least.

November 29. PLANTING ACORNS, in the interspaces of plantation A.: at present, a mixture of FOREST TREES and ORNAMENTAL SHRUBS. Dibbled in three, triangularwise, and six inches asunder, in the center of each interspace; also two at the foot of each oakling; in order that the entire ground may, hereafter, be wholly occupied by TIMBER TREES; to which the ORNAMENTALS, beside gratifying the eye in the first instance, are considered as NURSES.

November 30. PLANTING ACORNS, on the potatoe ground, of plantation B. in rows, set
out

out by a land chain, a quarter of a rod asunder, and six inches apart in the rows; dibbling them in a zigzag, alternately on either side a line, stretched tightly on the surface,—in this case nearly flat,—with blunt-pointed dibbles; letting a little mold fall down to the bottoms of the holes, to prevent water from lodging round the acorns; burying them about two inches beneath the surface; covering them with the feet, in the gardener's manner.

Each square rod, planted in this way, takes one hundred and thirtytwo acorns; and a corn pint, of middle-sized acorns, contains, I find, as nearly as may be, that number. A pint a rod is equal to two statute bushels and a half an acre.

The expence of planting acorns, in this way, is about five shillings an acre.

Finished AUTUMNAL PLANTING.

The PLANTS, in this instance, have been chiefly low: most of them under four feet; the first having mostly BALLS OF EARTH; the DECIDUOUS species all NAKED ROOTS.

The GENERAL MANAGEMENT, this autumn, has been similar to that of last spring (see MIN. 146.), except that the WATERING of the holes has been omitted; as being, at this

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season, unnecessary; and except that the plants, to elude the power of the winter's winds, were PRUNED before planting.

The plants, in this case, being small, the HOLES have been made by merely chopping a ring round the stake, and shovelling out the loose mold of the upper spit; rounding up a hillock of mold, upon the buried turf, to set the plant on.

In PLANTING, the roots, as before, have been BEDDED, TIRE OVER TIRE, with the HAND; and, the uppermost tire being covered with mold, the whole were pressed down; first gently, with the HAND; and, having added some more mold, they were then trodden hard, with the FOOT; observing, in this instance, throughout the operation of planting, to INCLINE the HEADS of the plants toward the SOUTHWEST; the site of this plantation being fully exposed to that aspect.

December 1. Preparing POSTS and RAILS for plantation fences.

The practice of this country is well entitled to notice.

The posts are MORTICED with an inch and half auger, and a small HATCHET; with which the wood between the holes is *chopped out!*

In

IN POINTING the rails, they are set upon a block, and held, in a leaning posture, by letting the upper part fall into the forked end of a piece of wood, raised, at that end, by two legs, about six feet long; the piece being about the same length below the part where the legs are entered, and projecting fourteen or fifteen inches above it. The legs are put in spreading, and nearly at right angle to the principal piece; which may be of any size or form, so that it be of due length, and have a fork, natural or artificial, at the end.

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1786. February 16. SPRING PLANTING*. When circumstances suit, planting seldom goes on better, than when the holes are opened, the plants taken up, and planted, the same day.

Yesterday, the horses, being better employed in HUSBANDRY, were of course taken from PLANTING. To keep the plantation men employed, I took up plants, and dug
D d 4 holes;

* Previous to this, I had formed an ORNAMENTAL Green plantation, by removing TALL PLANTS, some of them upwards of twenty feet high: but as plants of this height can seldom be removed with a view to UTILITY merely, I forbear to bring forward, in this place, the practice of TRANSPLANTING. SEE PLANT. and ORN. GARD. page 35.

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holes; intending to have done, today,—“ a great stroke of planting.” But a hoar frost, last night, has lined the holes, and covered the earthy balls of the plants with icy crusts; and a fog, through which the sun cannot penetrate, keeps them in this unfit state for planting: how many are the disappointments of *prælice*!

February 17. Today, I examined the PINES and FIRS which were PRUNED, by taking off the ends of their lower boughs, last spring. See MIN. 146.

Of the WEYMOUTH PINES, I see, the stumps, left some two or three inches long above the uppermost pair of wings, are dead: the *branches* of this species having no *leaves* to draw up the sap into the stumps.

Of the SPRUCE FIRS, those terminating stumps are alive; the leaves, with which this species is furnished, being, however, sickly and thin, toward the ends of the stumps.

But those of the BALMOFGILEAD FIRS are fully furnished with leaves, to the very rosin, which still varnishes the ends of some of the stumps.

With respect to the wings, or side branchlets, of the boughs immediately below the
stumps;

stumps, I can perceive no injury, whatever, done to *any* of them.

How unlikely, then, that the plants, at large, should have suffered from a few drops of sap, oozing out of the ends of boughs, which, themselves, have received no injury. Had these boughs been left unlopped, the extra quantity of sap expended would, probably, have been tenfold that which has been exhausted by *bleeding*: a frightful word.

Something, however, may depend on the SEASON, in which the operation is performed. DECIDUOUS plants have their BLEEDING SEASON; and EVERGREENS may have their's. It appears evidently, however, in this instance of practice, that the PINE TRIBE may, *in winter*, be PRUNED with safety.

February 22. Having waited some time, that the frosts might pass away, I yesterday fetched a considerable parcel of plants, from a nursery in the neighbourhood; and purposed to have begun planting them, today; having prepared holes and provided an addition of hands to put them in; and even distributed some of the plants, over night, to forward the business of the day.

But

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But a strong easterly wind, springing up in the night, brought a hard BLACK FROST ! so that we could not touch a plant, until two or three o'clock this afternoon.

Shovelled out the frozen crust at the bottoms of the holes ; and bedded the roots in fresh, unfrozen mold.

February 23. The frost much harder, and the wind still more piercing, than yesterday !

How uncertain is the business of planting, in EARLY SPRING : and how hazardous to fetch plants from a distance ; even of a few miles ; and even in the finest FEBRUARY ; which, let it be ever so flattering, appears to be too early to expose a quantity of naked roots to a journey ; even of six or seven miles.

Plants, which are upon the spot, may be removed any open day in winter, with a degree of certainty ; and, perhaps, under ordinary circumstances, in no month, with greater propriety, than in FEBRUARY : provided the soil be sound, and dry enough to work.

If, however, the situation be wet, and the subsoil cold, MARCH, in my opinion, is a more eligible month for planting.

What is most to be feared, in planting late in the spring, is a want of moisture, to set the roots to work, in the first instance. But this,
by

by a previous watering, may be had on a certainty.

It is highly probable that plants never succeed better, than when they begin to *draw*, as soon as they are planted. Roots remaining in a mangled state, lopped, gashed, and bruised, as they generally are, and always must be more or less; a month, or, after autumnal planting, five or six months, exposed to wet and frost, in a state of lifeless inactivity, are, probably, liable to more injury than those which remain, in their natural state, until the harshness of winter is past, and until they can, immediately on being transplanted, set themselves to work, and heal up their wounds.

The bad success which has hitherto attended AUTUMNAL PLANTING, upon this estate (chiefly a moist retentive soil), and the great success which last year resulted from planting in APRIL, strongly corroborate this theory.

In a light soil, and over an absorbent sub-soil, early, or even autumnal, planting may be eligible.

February 28. Tuesday. The severity of the weather continues. From Sunday evening, until today at noon, there has been an incessant

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fant FALL OF SNOW, with a northeast wind. The snow drifted, in many places, breasthigh: the swamp plantation, lying under the wind, is nearly buried; and here the snow is less drifted, the branches of the firs are loaded with it.

The FIRS, whether *spruce* or *silver*, spread out their branches, flat, as if for the purpose of forming a lodgement for snow: and even the twigs are leafy: not a flake can escape: a board held out, could not catch the flakes more effectually. Some of the branches are loaded four inches thick with snow; yet not one, which I have examined, is broken: though some of the lower ones are bent to the ground.

The PINES, whether *Scotch* or *Weymouth*, have fared better. Indeed the WEYMOUTHs, whose taffels are naturally pendant, and whose twigs are leafless, have not, being shook by the wind, a particle of snow upon them in any situation. But the taffels of the SCOTCH, being larger, more open, and less pendant, have many of them retained the snow; some of the slender twigs, thus loaded, being bent down, and appear twisted by the wind; but the branches at large preserve their natural ascension,

The

The LARCHES, being, at this season, naked of leaves, are, in this instance, perfectly free from snow.

March 12. Two days ago, the wind got round to the southwest; and, yesterday, the THAW was confirmed; the snow, today, wafting very fast.

The FIRS, which were buried under the drifted snow, have now a singular appearance. As the snow sinks, it bears down the branches buried among it. Several of the upper tires of the SPRUCES are bent down almost close to the stem, nearly reaching the ground: yet not one of them is broken! They are so perfectly tough and elastic, that, as soon as they are released from the snow, they spring up, immediately, to near their natural height. How wonderful are the COUNTERACTIONS of nature *!

March 16. Yesterday, before the FROST was sufficiently out of the ground to recommence

* In farther illustration of this principle of nature, it is observable, that some SCOTCH FIRS, whose branches are less liable, in their nature, to be borne down by snow,—but which, in this instance, being forced down by the settling of the drift,—are many of them broken, and those which are not, droop, unable to regain their wonted elevation.

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mence planting, the snow returned in profusion, with a gale of wind: both of which have since continued unremittingly! the snow being now drifted, in many places, deeper than before: most roads being rendered impassable: hollow ways levelled; and some lanes filled up fence height.

March 21. After a month's prohibition, returned, at length, to planting.

How much depends on the operation of TAKING UP! yet how few NURSEYMEN can be relied on in the performance of it!.

Some LARCHES which, having stood too long in the nursery, had got full of wood, I desired might be taken up with all the root that could possibly be preserved. But, through ignorance, idleness, or wantonness, the roots, in taking up, have been chopped off, a few inches from the stems, with scarcely a fiber left upon them. The stems six or eight feet high, and loaded with branches, but with roots not more than six or eight inches long!

The value of plants may be said to depend on the TAKING UP: these sixty plants, for instance, were, *as they stood*, worth their cost—twenty shillings; but, *after they were taken up*, they were not worth the carriage; and the loss

loss is less than the disappointment ; there being no other to be had in the country ; nor any time to be lost in fetching others from a distance.

When a quantity of plants are wanted, it is but common prudence to send an experienced person to attend to the TAKING UP ; or to make it part of the agreement, to pay for none, but what shall be taken up in a workmanlike manner.

Not the supply of sap only, but the stability of the plant in the soil, depends on the roots ; whose length should be proportioned, as it generally may be, to the height of the plant : and, for plants of four to eight feet high, the LENGTH OF ROOT ought not to be less than ONE FOURTH OF THE HEIGHT.

DISTANCE. In cases where plants are required to be *purchased*, the expence of planting rests, principally, on the NUMBER OF PLANTS ; and this on the DISTANCE at which they are planted.

Thus an acre of ground, planted at every rod, requires one hundred and sixty plants : at every half rod, six hundred and forty ; at every quarter of a rod, two thousand five hundred and sixty.

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in
PLANTING.

In a timbertree plantation, the advantages of setting the plants in close order are those of withstanding with greater fortitude the severity of seasons, and of assisting to give each other an upward tendency in the first stage of their growth: the disadvantages, those of encreasing the number of plants ;— of crowding the plantation so as to prevent the use of the plow, in the first instance ;— and, if not timely reduced in number, of robbing each other afterward of their requisite nourishment; as well as of drawing each other up tall and weak : a circumstance, this, infinitely more prejudicial to their future prosperity, than that of spreading too much in the first stage of their growth.

Nevertheless, I am of opinion, that low slender plants,—plants under a quarter of a rod high,—cannot be set out, with propriety, at more than a quarter of a rod asunder : unless some other expedient, than a close arrangement of LIVING PLANTS, could be hit upon to give them warmth and an upward tendency, in the first stages of growth.

In a LARGE UNDERTAKING, where planting goes on in continuance, from year to year, nothing is lost by planting closely ;
each

each YOUNG PLANTATION being a NURSERY GROUND, out of which the supernumerary plants may be removed, as occasion may require.

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in
PLANTING.

But, in the more ORDINARY BUSINESS OF PLANTING, where a particular plantation, or suite of plantations, being made the business of planting is finished, these supernumerary plants are too frequently suffered, through misjudgment, or false delicacy, to do irreparable injury to the plantation; by crowding, after the first stage of growth, and forcing up too rapidly, those which ought to form the grove, in its more advanced stages.

These reflections lead aptly to the expedient of giving the required shelter and upright tendency, in the first stages, by DEAD PLANTS; as the sprayey tops of coppice wood, or the topwood of such trees as form thickly furnished branches.

By this expedient, three fourths of the expence of plants (supposing the cost and putting in of the dead plants to be no more than the carriage and expence of planting

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live

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live ones) would be saved. Thus, if *Instead* of planting living plants, at every quarter of a rod, they were put in at every half rod only, and estimating the cost of fourfoot plants at fifteen shillings a hundred, the saving, through this expedient, would be upwards of fourteen pounds an acre: namely, four pounds sixteen shillings, *instead* of nineteen pounds four shillings.

And, beside this great saving in the original expence, two other advantages would arise from such a practice: the DEAD PLANTS might be readily removed, (and again replaced) to admit the plow (or the spade with greater freedom) into the intervals; and the regularly progressive decay of such plants would be a more *natural* and less *dangerous* way of relieving the standards, than the abrupt removal of live ones*.

GENERAL MANAGEMENT. THIS SPRING, the ground being sufficiently moist, the holes have not been watered.

The METHOD of PLANTING has been similar to that of last spring. The NAKED-ROOTED

* This, however, by way of intimation.

ROOTED PLANTS have been set upon HILLOCKS of mold, formed in the bottom of the holes to receive them; spreading the roots and fibers wide on every side, in the BIRDSFOOT manner, and disposing them TIRE OVER TIRE, as nature had disposed them in the nursery, and as their stability, now, and their prosperity, hereafter, required.

WORKMEN. This spring, the plants have been put in, chiefly, by a set of four: a tutored planter and his helper going before, to bed the roots, with two followers, to fill in, and tread firmly, the remainder of the mold; loading the roots, leaving the surface globular, and as firm as a floor; the soil, in this case, being somewhat light.

This set, when fully in their work, put in about twenty tall plants an hour; or one plant in three minutes: the EXPENCE of PLANTING such fullsized plants (six to ten feet high) *deliberately*, and *firmly*, being little more than half a crown a hundred: and *burying* them in, *carelessly*, would have cost eighteenpence or two shillings.

E e 2

Whether

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in
PLANTING.

Whether in PLANTING or in TAKING UP, the workmen's directions have been to proceed with DELIBERATION: a minute more or less, in either of these operations, being incomparable with the difference between MISCARRIAGE and SUCCESS.

LIST

L I S T
OF
R A T E S
IN THE
D I S T R I C T
OF THE
M I D L A N D S T A T I O N.
ESTATES.

PURCHASE value of land. — See v. i,
p. 15.

Rental value of land.—i. 17.

Rental value of tithes—i. 18.

BUILDINGS*.

Bricks at the kiln, 16s. a thousand.

Laying bricks, 4s. a thousand, digging
the foundation included.

E c 3

Bricklayer's

* For the price of timber see WOODLANDS.

LIST OF RATES.

Bricklayers day wages, 22*d*.

Carpenters day wages, 22*d*.

Thatchers day wages—the ordinary wages
of the season.

HEDGES.

Transplanted hawthorn, 7*s*. a thousand.

Stakes, in the wood, 6*d*. to 7*d*. a score.

Edders, ———, 9*d*. a bundle of sixty,
or threepence a score.

Planting a new hedge,—see MIN. 123.

Stocking a live hedge, 3*s*. an acre, and
the roots.

Felling a fullgrown hedge to the stub, 9*d*.
an acre*.

Cutting hedges fenceheight, 10*d*. to 14*d*.
an acre.

Laying or plashing a hedge, and scour-
ing the ditch, ½*d*. "a fide"—or 1*d*. a yard.

Making a stake and edder hedge—very
stout—18*d*. an acre.

Rough stake hedge without edders, 1*s*.
an acre.

Morticing

* An acre, in this neighbourhood, is 32 yards.

Morticing posts (two holes) 1s. a score.

Pointing rails, 5d. a score.

Putting down posts and rails, 22d. an acre.

Hedge carpenters dayswork, 21d.

WOODLANDS.

Stocking and butting middlesized timber trees, 18d. a tree.

Butting such trees, 4d. a tree.

Peeling bark, 10s. to 10s. 6d. a ton.

Binding faggots, labourers finding bands, 5d. a score.

————, employer finding bands, 4d. a score.

Cutting posts and rails out of top-wood, 1s. a score.

Cutting stakes out of ditto, 1d. a score.

Sawing oak, 3s. 3d. a hundred feet.

———— ash, 3s. —————

———— elm, 3s. —————

———— poplar, 2s. 6d. —————

“Cleaving” laths, 4d. a bundle of five score.

LIST OF RATES.

Cutting and setting up cordwood, 2s. a cord.

Oak in the rough, 18d. to 2s. a foot*.

Elm in the rough, 9d. to 1s. a foot.

Ash ————— 9d. to 1s. —————

Poplar ————— 8d. to 14d. ——— †.

Oak inch board, 3d. a square foot.

Elm ————— 1½d. —————

Ash ————— 1½d. —————

Poplar ————— 1½d. —————

Ash axletrees, 3s. to 3s. 6d. each.

— fellyes, six inches, 12s. a trine of thirteen.

— narrow, 8s. a trine ———.

Elm naves, 4s. a pair.

Oak spokes, 13s. a trine of twentyfive.

Pests or rails in the wood, 4d. to 6d. each.

Ash laths, 1s. a bundle, of five score.

Spray faggots, 8s. to 10s. a hundred of six score.

Rough roots, 2s. or 3s. a load ‡!

Dimensions of cordwood, see v. i. p. 104.

Price

* Price of BARK. See MIN. 139.

† See MIN. 163.

‡ Coals cheap.

Price of coalwood, 10s. to 12s. a cord.

Re-cording wood, 6d. a cord.

Burning charcoal, 1d. a bushel.

A load of charcoal, 12 bags of 12 indeterminate bushels each.

PLANTING..

Double digging fward, 18 inches deep, 15d. a rood of 32 square yards.

Digging holes two feet diameter, and two feet deep, in doubledug ground, ½d. each.

Cost of planting, see ii. 419.

Acorns in a common year, 1s. a bushel.

Planting acorns, 5s. an acre, ii. 405.

WORKMEN.

YEARLY WAGES.

Waggoner, 8 to 10 guineas*.

Maid, 3 to 5 guineas.

Youth, 4 to 5 guineas.

Lad, 2 to 3 guineas.

DAY WAGES.

Winter (1 Nov. to 1 Mar.) 1s. a day †.

Spring

* Gave a waggoner, the *summer half year*, 6 guineas; the *winter half*, 4 guineas.

† With small beer, in this and every other case.

LIST OF RATES.

Spring (1st March to hay time), 14*d.* a day.

Haytime,—18*d.* a day.

Harvest,—2*s.* a day *.

Autumn (harvest to 1st Nov.), 14*d.* a day.

Women in autumn and spring, 6*d.* and beer.

—— in haytime, 9*d.* and beer.

Boy, 4*d.* to 6*d.* in autumn and winter.

HOUSE EXPENCES.

Beer—for the quantity drank, see ii. 48.

Malting barley, 5*d.* a bushel.

Grinding wheat, 5*d.* a bushel.

Coals at the pit about 5*s.* a ton.

IMPLEMENTS,

Waggon about 20 guineas.

Double plow—woodwork, 2 5*s.* Ironwork 4*s.*

Single plow— ——— 1*o* 6*d.* ———

18*s.* to 20*s.*

Wheelwrights' wages, 22*d.* to 2*s.* a day.

Leatherwork of the harness of one horse,

35*s.* to 40*s.* †

Waggon ropes, 5*d.* to 6*d.* a pound.

Cart-

* Gave in a late harvest, 18*d.* a day.

† See i. 134.

Cartgrease, ready mixed, 3*d.* a lb.
Spade, 3*s.* 6*d.*

BLACKSMITHS WORK.

Common ironwork, 4*d.* a lb.
Working over old iron, 2*d.* a lb.
Wheel tire, 27*s.* a cwt.
Tire nails, 4*d.* a lb.
Shares and draft irons, 5*d.* a lb.
Strong chains, 5*d.* a lb.
Traces and backbands, 6*d.* a lb.
Laying a share, 1*s.*
Laying a coulter, 7*d.*
Sharpening a share or coulter, 1*d.*
Shoe, 5*d.*
Remove, 1½*d.*

SOIL PROCESS.

Underdraining. See MIN. 106.
Plowing with a double plow, five horses
man and boy, 13*s.* a day.
—— with a single plow, three horses
man and boy, 7*s.* 6*d.* a day.

MANURE

LIST OF RATES.

MANURE.

Dung, at Tamworth, 10s. 6d. a waggon load.

Lime, at the kiln, 8s. to 10s. a chaldron.

Piling and mixing compost, 1d. a cubical yard.

Turning and watering lime, 4d. a load of six quarters.

Turning and watering dung, 1½d. a cart load.

Spreading dung out of hillock, 1d. a load.

————— out of carriages, see ii. 36.

Wheeling mud or mold, with one wheeler to two fillers, 1½d. a cubical yard.

————— with one wheeler to one filler, 2d. a yard.

————— with two wheelers to one filler, 3d. a yard.

SEED PROCESS.

“Turfig” oats, about 6d. an acre.

Crossfurlowing deep and wide, and chopping and raking the mold smooth on either side the trench, 5d. an acre.

VEGE-

VEGETATING PROCESS.

Hoing turneps twice, 8*s.* with ale.

— — — — — once, 5*s.*

— — — — — by the day, 2*s.* 6*d.*

Handweeding turneps cost about 2*d.* an acre.

HARVESTING.

Reaping wheat, by the threave, 4*d.* to 6*d.*

— — — — — oats, — — — — —, 3*d.*

— — — — — wheat, by the acre, 6*s.* to 8*s.*

Mowing and sheaving oats, 5*s.* an acre.

— — — — — barley into swath, 18*d.* an acre.

— — — — — oats — — — — —, 16*d.* an acre.

Taking up potatoes, 1*d.* to 2*d.* a bushel.

Gave in lieu of harvest supper, 1*s.* a man,
and 6*d.* a boy.

FARMYARD.

Thraffing wheat and binding the straw,
4*d.* to 5*d.* a bushel (of 9 gallons).

— — — — — barley, 16*d.* to 18*d.* a quarter.

— — — — — oats, 8*d.* to 10*d.* — — — — —.

Winnowing days paid for extra.

Cutting oats in straw, &c. 18*d.* a day and
board

LIST OF RATES.

board (for 40 bushels), or $\frac{1}{2}d.$ a bushel (rounded up). N. B. Cut very fine.

Strawyard keep of cows, 1s. a week.

————— stirks, 9d. ———.

Thrasher extra for foddering in the yard, 1s. a week (Sunday included).

GRASSLAND.

Cutting surface drains. See MIN. 32.

Expende of underdraining. See MIN. 106.

————— spreading drain mold. See MIN. 64.

Mowing meadow grafs, 21d. an acre.

————— " seeds," 18d. an acre.

Spudding boar thistles cost about $1\frac{1}{2}d.$ an acre.

Sweeping off the weeds of pasture grounds with the fithe,—by the acre, 3d. to 6d.—by the day, before haytime, 18d.

AGISTMENT.

Mayday to Michaelmas.

Grown horses, 60s. to 70s.

Two year olds, 45s. to 50s.

Yearlings, 35s. to 40s.

Fatting cows, 35s.

Two-year old heifers, 25s.

Yearlings, 15s.

Mare

Mare and foal, in summer, 3*s.* a week.

Young horses, after Michaelmas, 16 to 18*d.*
a week.

Cows, at head lattermath, 2*s.* a week.

Field sheep, from Michaelmas to Lady-day, at ordinary keep, 2*s.* better keep, 2*s.* 6*d.*
to 3*s.*

Pasture sheep, in summer, at head keep,
3*d.* a head a week.

MARKETS.

Road team, (waggon 5 horses man and boy), 14*s.* a day!

Waggoner's "spending money," 6*d.* to 1*s.*
a journey!

Turnpikes, 4½*d.* each horse in narrow-wheeled carriages.

"Chapmanry" on a load of corn, 1*s.*

Standard bushel (of Tamworth) "thirty-six quarts:"—nine gallons.

Bag of wheat, 3 bushels.

———— Barley, 4 ————

———— Oats 4½ ————

Weight of a bag of wheat, 10 score to 10
score and 16 lb.

Quarter

LIST OF RATES.

Quarter of oats, at Tamworth, 9 bushels.

_____, at Ashby, 8 _____.

_____, at Burton, 9 _____.

Score of oats, at Lichfield, 22 _____.

Load of oats, at Lichfield, 4 Tcore, or 88 bushels.

_____, at Tamworth, 10 quarter, or 90 bushels.

Load of barley, at Tamworth, 10 quarter, or 80 bushels.

_____wheat, at _____, 20 bags, or 60 bushels.

PRODUCE.

See the close of each Article.

AGRI-

AGRICULTURAL PROVINCIALISMS

OF THE

D I S T R I C T

OF THE

MIDLAND STATION.

A.

ACRE; a species of long measure consisting of
32 yards; four RODS.

AIGLES; icicles.

B.

BATCH; a grist; a quantity of corn sent to mill:
hence **BATCH BAG**.

BATTIN; a truss of straw.

BEACE;—the plural of beast; cattle: not peculiar to this district: having a plural termination which might well be received into the established language.

BEGGAR'S NEEDLE; *scandix pecten-veneris*—shepherd's needle.

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To

TO BELT ; to shear the buttocks and tails of sheep.

BENTS ; feedstems of the blade grasses.

BOOSINGS ; the stalls of cattle.

BOOSING STAKE ; the post to which stall cattle are fastened.

BOWLDERS ; a species of round pebble common to the foils of this district.

BRAB ; a spike nail.

BREEDING INANDIN ; see i. 300.

BRUSH ; stubble ; as a wheat brush, &c.

BUCKET ; a common bow-handled pail.

BULE ; the bow handle of a pail.

BUSHEL ; two STRIKES, or bushels.

BUT ; the lower stem of a timber tree ; as well as the root end.

BUTTY ; partner ; as fellow servant or labourer.

BYSLINS ; the first milk of a cow newly calved.

C.

CADLOCK, ROUGH ; *sinapis arvensis* ; wild mustard.

CADLOCK, SMOOTH ; *brassica napus* ; wild rape.

CAMP ; a hoard of potatoes, turneps, &c. See i. 250.

CANSH ; a small pile of faggots, &c. To "cansh them up" is to form such a pile.

CAPS ; hoodsheaves of corn SHUEKS.

CHAPMANRY ; that which is abated or *given again*, by the feller, on receiving money of the buyer.

To

To CLAM; to hunger or starve, as cattle.

CLAMMED, or WELLY CLAMMED; half starved for want of sufficient pasture or fodder.

CLEAS; the claws of cattle and sheep.

CLEFT; timber fit for coopers' ware, spokes, laths, &c.

CLEVVY; a species of draft iron of a plow.

CLUSTERS; crouds or clumps of turneps, &c.

COAL SMUT; a fossil, or an efflorescence, found on the surface, over seams of coal!

COCK; a species of draft iron of a plow.

COCKHEADS; *centaurea nigra*; meadow knob-weed.

COLTS; yearling horses.

COMINS; commonage.

COPPY; coppice.

To COPPY; to cut down for underwood.

CORD; a certain quantity of wood. See i. 104.

CORDWOOD; topwood, roots, &c. cut and set up in CORDS.

CORNED; furnished with grain.

COTTER; an iron key to a bolt.

CRACKED; cloven, as a sheep on the back or rump.

CRATCH; a hay rack.

CROWFLOWER; the *ranunculus* tribe; crowfoot.

CULLINGS; refuse: outcasts.

CUSHION-RUMPED; having two extraordinary bundles of fat upon the rump.

F f 2

CUT-

CUTMEAT; fodder, generally oats in straw, cut into short lengths, as *chaf*.

D.

DAGLOCKS; locks of wool cut off the buttocks and tails of sheep. See i. 446.

DAIRIER; dairyman.

DEA NETTLE; *galeopsis tetrait*: wild hemp.

DIGGING; a spit in depth. See MIN. 106.

To DITCH; to stick to; as the clamminess of mowburnt hay sticks to the cutting knife.

DOGFENNEL; *anthemis cotula*, &c. corn camomile.

DONKEY; dampish; dank.

DRINK; ale.

DYCHE; ditch.

E.

EASINS; eaves.

ELDER; the udder of a cow, &c.

ENTAILS; ends of lands. M. 75.

EYEABLE; sightly; pleasing to the eye; spoken of stock, &c.

F.

To FEED; to grow fat; also to fat, as grazing stock.

FEEDERS; fattening cattle.

FEEDING PIECE; grazing ground.

FEG;

FEG ; rough dead grafs.

To FETTLE ; to adjust ; to put in order.

FIN ; *anomis arvensis* ; reſtharrow.

FINCH-BACKED ; white on the back ; as cattle.

FITCHET ; or FIDGET ; a polecat.

FLEWS ; phlemes, for bleeding cattle, &c.

To FLOAT : to overflow, or water, as grafsland :

alſo to *pare off* the ſurface of ſward.

To FLOAT UPWARD. See MIN. 27.

FOOT TRENCHES ; ſuperficial drains about a foot wide.

FOREIGNERS ; ſtrangers.

FORE FLANK ; a point of ſheep. See v. i. p. 398.

G.

GALLS ; vacant or bald places in a crop.

GALLY ; ſcattered with GALLS.

GARNER ; a bin ; in a mill, or a granary.

GAUN ; a gallon meaſure ; alſo a ſmall tub.

GEERING ; the ladders and ſide rails of a waggon.

A GIFTY DAY ; a boon day ; as a dayſwork given by neighbour to neighbour.

GLUT ; a large wooden wedge.

GOLDS ; *chryſanthemum ſegetum* ;—corn marigolds.

GOOSE TANSEY ; *potentilla anſerina* ; ſilverweed.

GORSE or GOSS ; furze, whin.

GOUTY ; diſeaſed and ſwelled by ſubterraneous water ; as boggy tumours, at the bottom, or on the ſide of a hill.

PROVINCIALISMS.

GREEN SAUCE; *rumex acetosa*; forrel.

GRUDGINGS; pollard; fine bran.

GUTTER; trench, or grip.

H.

TO HACKLE; diminutive of to *hack*; as to
"hackle turneps:" to pull them up with a little
twopronged *hack*. (See YORK. ECON.)

HAIROF; *galium aparine*; cleavers.

HARD IRON; *ranunculus arvensis*; corn crowfoot.

HAT; heated; as hay or corn.

HEARTH; the floor on which wood is charred.

HEN GORSE; *ononis arvensis*. See FIN.

HENSCRATLINGS. See i. 151.

TO HIKE; to strike with the horn; to *do*; to *bipe*.

HILLOCKY; full of anthills.

HOODS; the covering sheaves of shucks: *hood-
sheaves*.

HOG. See LAMBHOG.

HOSE; the vagina, or *sheath*, of corn.

HUBS; naves of wheels.

I.

INANDIN; from the same line of parentage. See
i. 300.

JOINT GRASS; *galium verum*; yellow bedstraw.

KERNEL;

K.

KERNEL; a bundle of fat before the shoulder;
the *shift*.

To KIBBLE; to crush; to grind imperfectly.

KIDS; faggots.

L.

LAG; a defect of timber. See MIN. 141.

LAKES; pools or puddles of water standing in roads, or on land, after rain.

LAMB-HOGS; yearling sheep before SHEARDAY.

LAP-LOVE; *convolvulus arvensis*; corn convolvulus; also *polygonum convolv.* climbing buckweed.

LAY; pasturage for the summer; joist; agistment.

To LAY; to *plash*, as an hedge.

LAYLANDS; grass ridges in common fields: arable lands which have been suffered to lay down to grass:—hence LAY as above; and hence, probably, *ley* and *leighb*.

LIVING; a tenement, or farm. The common field townships were divided into a certain number of “livings.”

LOCUSTS; chafers; brown beetles.

LOW; a hill! hence the names of various hills; and hence the

LOW COUNTRY; the hills of Staffordshire, &c. the *Morelands*.

M.

MAUPLE; maple.

MAW SKIN; the stomach of a calf; used in cheesemaking: *well*, &c. &c.

MEADOWS; the dips or bottoms of vallies in a state of grafs.

MEATY; fleshy, but not fat; spoken of grazing stock.

MUCK; dung, compost.

N.

NATHE; nave of a wheel.

P.

PAD; path.

PASH of rain; a heavy fall of rain.

PASSER, or nailpasser; a gimblet; or *piercer*.

PEAKRELS; men of the Peak of Derbyshire.

PENNYWEED; *rhinanthus cristata-galli*; rattle.

PINFALLOW; winter fallow. See i. 241.

PINGLE; a small croft, or *pightle*. (NORF.)

To PIKE; to glean.

To PILE; to break off the horns of thrashed barley.

PILING IRON; a tool used in PILING BARLEY, and sometimes *taily oats*.

POOTHERY;

POOTHERY; clofe, muggy, fultry; fpoken of the weather.

Q.

QUART of butter; three pounds.

QUEECE; the wood pigeon.

R.

RAMGETTER; fee i. 422.

RAUNPIKED; — provincial of *raven-picked*; stagheaded, as an old overgrown oak; having the stumps of boughs ftanding out of its top.

RAW; wet and cold, as the foil in fome feafons; unfit to receive the feed.

To REAR; to rife up before the plow, as the furrows fometimes do in plowing; frequently owing to a bad plow, or a bad plowman.

ROOD; a meafure of eight yards in length; or thirtytwo fquare yards; fomewhat more than two fquare rods or perches.

ROPE; the preterite of to *reap*; fpoken of corn.

RUCK; a rough bundle or heap of any thing.

RUNNING BULL of a harrow; fee i. 143.

To RUN OUT; to grow or *fpout* as corn in harveft; alfo to *fcour*, as cattle.

SARVER,

S.

SARVER, (that is *server*) a horse or stable scuttle.

SCORE; twenty pounds: used in speaking of the weight of cattle and swine.

SCRAWLY; thin and ravelled, as corn.

SEEDS; young grasses;—land newly laid to grass.

SEEDNESS; seed time.

SETS; plants of potatoes, &c.

SHADE; a shed; as "a cow shade."

To SHADE; to shed, as corn.

SHAREGRASS; *carix birta*; a species of sedge.

SHARHOG; (that is, a *share* or *shorn* HOG) a yearling sheep after SHEARDAY: see LAMBHOOG.

To SHEAVE; to *bind* corn.

SHEARDAY; the shearing day of sheep, *sheep-shearing*.

SHUCK; twelve sheaves of corn set up in the field: *stock*: *flock*.

SLASHER; a *plaster* or *pleach* of a "laid" hedge.

SLUDGE; mire.

SLIDE; a sledge.

SLIT; a crack or cleft in the breast of fat cattle.

SOCK; the drainage of a farm yard: hence SOCK-PIT, the receptacle of such drainage.

SOUGH; a covered drain of any size.

SPADE-BIT; the quantity of soil raised by one effort of the spade: perhaps the etymon of *spit*.

SPADE-

SPADE-BONE; the shoulder bone; the blade bone; perhaps the shoulder bone of a horse or an ox, was the *spade* of our ancestors.

SPINNEY; a clump, or small plantation, or grove.

SPANNER; a wrench; a nut screw-driver.

SPINAGE, WILD; *chenopodium*; goosefoot.

SPRIT; sprouted, as corn in the field.

SPOKEN CHAIN; an appendage of a waggon, peculiar to this district: a long strong chain, to be fixed to the spoke of the wheel, when the team is "stalled" or set fast in a slough.

To SQUEAN; to fret as the hog.

STALE; handle of every kind; as fork-stale, plow-stale: hence probably the corruption *plew's tail*.

To be STALLED; to be set fast in a slough, or bad road.

STATUTE; a hiring day of farm servants.

To STOCK; to *grub*: see i. 102.

STODGED; filled to the stretch; as a cow's udder with milk.

To STOMBLE; to trample, or poach, as wet soil.

To STOOL; to ramify as corn; to *flock*, to *tiller*.

STRAW-CUTTER; a cutter of straw, &c. into *chaf*.

STRIKE; bushel; the common term. See BUSHEL.

STRICKLESS; striker of a bushel, &c.

STUMP; post.

SWAUF; cart coom,

TANKARD

T.

TANKARD turnep; the pudding, or *long-rooted* turnep.

THACK, &c.; thatch, &c.

THAVE; a young ewe.

THONE; somewhat damp and cold; not thoroughly dry.

THOROUGH; an interfurrow between two ridges.

THREAVE; twentyfour sheaves.

THROO; a slip or width of corn, which a set of reapers, &c. drive before them, at once; whether it consist of one or more lands or ridges.

TONKEY; a modern provincialism: a word lately introduced, I believe; and appears to be at present of uncertain meaning;—shortlegged and deep carcased; resembling the Chinese breed of swine.

TRINE; of *fellies* thirteen; of *spokes* twentyfive.

TRY; a corn skreen.

To TRY; to skreen.

TUNNING DISH; the common name of a *tunnel*; which is perhaps the diminutive of *tunning dish*.

TUPMAN; a breeder of, or dealer in TUPS, or rams.

TURF; sward—grasland, See ii. 39, &c.

To TURF; to adjust the surface of sown turf.
See i. 209.

TURN;

TURN; year, or time.

TURNEPING; collecting turneps.

TWITCH, common; *triticum repens*; couch-grass.

———— black; *festuca duriuscula*; hard fescue.

———— running; *agrostis alba*; marsh bent.

W.

WAGGONER; an upper man servant; *carter*.

WASTRELS; outcasts; as wastrel bricks, &c.

WALLSPRING; a cold, wet, springy, or spewy part of land.

WALL; the stem of a rick is called the walls.

WEDDERGETTER; see i. 422.

WHIT-TAWER; a collarmaker; the common name.

WILLOWEED; *polygonum pennsylvanicum*, &c.; perficaria; smartweed.

WIND; (the *i* long) a winch, or wince.

Y.

YELLOW; *genista tinctoria*; dyers' weed.

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